K L Deemed to be University
Department of Computer Science and Engineering-Honors -- KLVZA
Course Handout
2024-2025, Odd Sem

Course Title	:CLOUD DEVOPS (EPAM)
Course Code	:22CS2243F
L-T-P-S Structure	: 2-0-2-0
Pre-requisite	:
Credits	: 3
Course Coordinator	:Bindu G
Team of Instructors	:
Teaching Associates	:

Syllabus : Introduction to Devops & best practices of Devops ,Importance of networks in Devops ,Protocols &Topologies, Subnetting and Problems on Subnetting, Linux Fundamentals, Role of Version Controlling in Devops ,GIT, Introduction to Cloud Computing and types, Infrastructure as a code, Architecture and Installation of terraform, Life cycle of Terraform tool, Ansible and its installation, Introduction to YAML, Playbooks, Introduction to Virtualization and Evolution of Containerization Docker Architecture, Packaging your software- Dockerfile, Manage data in Docker - Volumes Networks of Docker Containers, building multi containers applications using Dockers Compose Container orchestration using Dockers Swam, Kubernetes Architecture and pods in Kubernetes, Introduction to CI/CD Jenkins and its components Integrating jenkins with email and git, Pipelining using jenkins file, Dockers with pipeline, Pipeline Maven Integration.

Text Books :1.Roberto Vormittag, “A Practical Guide to Git and GitHub for Windows Users: From Beginner to Expert in Easy Step-By-Step Exercises”, Second Edition, Kindle Edition, 2016. 138 2. Jason Cannon, “Linux for Beginners: An Introduction to the Linux Operating System and Command Line”, Kindle Edition, 2014

Reference Books :1. Hands-On Azure Devops: Cicd Implementation For Mobile, Hybrid, And Web Applications Using Azure Devops And Microsoft Azure: CICD Implementation for ... DevOps and Microsoft Azure (English Edition) Paperback – 1 January 2020 2. by Mitesh Soni 3. Jeff Geerling, “Ansible for DevOps: Server and configuration management for humans”, First Edition, 2015. 4. David Johnson, “Ansible for DevOps: Everything You Need to Know to Use Ansible for DevOps”, Second Edition, 2016. 5. Mariot Tsitoara, “Ansible 6. Beginning Git and GitHub: A Comprehensive Guide to Version Control, Project Management, and Teamwork for the New Developer”, Second Edition, 2019. 6. https://www.jenkins.io/user-handbook.pdf 7. https://maven.apache.org/guides/getting-started/

Web Links :1. https://git-scm.com/doc 2. https://registry.terraform.io/providers/hashicorp/aws/latest/docs 3. https://docs.ansible.com 4. https://docs.docker.com

COURSE OUTCOMES (COs):

CO NO	Course Outcome (CO)	PO/PSO	Blooms Taxonomy Level (BTL)
CO1	Understand different actions performed through Version control tools like Git.	PSO1,PO1,PO3	2
CO2	Ability to do configuration management using Ansible and provisioning infrastructure as a code using terraform	PSO2,PO1,PO2	3

CO3	To implement sophisticated solutions for orchestrating and scaling application deployments using advanced containerization techniques.	PSO1,PO1,PO2	4
CO4	To perform Continuous Integration and Continuous Testing and Continuous Deployment using Jenkins by building and automating test cases using Maven & Gradle.	PSO2,PO1,PO2	4
CO5	Experimenting Different DevOps tools in AWS cloud platform	PSO2,PO1,PO2	5

COURSE OUTCOME INDICATORS (COIs)::

Outcome No.	Highest BTL	COI-1	COI-2	COI-3	COI-4	COI-5
CO1	2	**Btl-2** Define DevOps and need of DevOps in SDLC, Choose Version Control system for deploying files and need of Cloud Platforms in DevOps	**Btl-2** Classify the tools and technologies of DevOps, Illustrate the need of Version Control System and Outline the need of Cloud in DevOps			
CO2	3		**Btl-3** Identify the need of Configuration Management and Continuous monitoring in DevOps	**Btl-3** Examine the infrastructure set up using terraform and ansible tools		
CO3	4	**Btl-2** Understand Docker Architecture	**Btl-3** Compare Docker with virtualization, Outline Kubernetes and Chef.	**Btl-3** Build applications using Docker, Kubernetes and Chef	**Btl-4** Inspect the working behavior of Docker, Kubernetes and Chef tools	
CO4	4		**Btl-2** Outline CI/CD and Need of Automation Testing for Software Development	**Btl-3** Make use of Jenkins and Azure for CI/CD, Identify the need of Automation Testing Frameworks	**Btl-4** Examine the CI/CD process for Maven in Jenkins, Examine the application build using Pipeline and Distinguish TDD and BDD.	
CO5	5				**Btl-4** Build and Inspect the Tools associated to	**Btl-5** Build and Inspect the Tools associated to

					DevOps Life Cycle	DevOps Life Cycle

PROGRAM OUTCOMES & PROGRAM SPECIFIC OUTCOMES (POs/PSOs)

Po No.	Program Outcome
PO1	Engineering Knowledge:Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO1	Engineering Knowledge:Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	Problem Analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences
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PO3	Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations
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PO4	Conduct Investigations of Complex Problems:Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions for complex problems that cannot be solved by straightforward application of knowledge, theories and techniques applicable to the engineering discipline.
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PO5	Modern Tool Usage:Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
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PO6	The Engineer and Society:Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
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PO7	Environment and Sustainability:Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
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PO8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice
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PO9	Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
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PO10	Communication:Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
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PO11	Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
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PO12	Life-long Learning: Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.
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PSO1	An ability to design and develop software projects as well as Analyze and test user requirements.
PSO2	An Ability to gain working Knowledge on emerging software tools and technologies.

Lecture Course DELIVERY Plan:

Sess.No.	CO	COI	Topic	Book No[CH No][Page No]	Teaching-Learning Methods	EvaluationComponents
1	CO1	COI-1	Introduction to Devops & best practices of Devops	Text Book[1]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-I (MCQ)
2	CO1	COI-2	Importance of networks in devops ,Protocols &Toplogies	Text Book[3]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-I (MCQ)
3	CO1	COI-2	Subnetting and Problems on Subnetting, Linux Fundamentals,	TEXT BOOK [1]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-I (MCQ)
4	CO1	COI-2	Role of Version Controlling in Devops	TEXT BOOK[2]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-I (MCQ)
5	CO1	COI-2	Role of Version	Text Book[1]	Chalk,LTC,PPT,Talk	ALM,End Semester

Sess.No.	CO	COI	Topic	Book No[CH No][Page No]	Teaching-Learning Methods	EvaluationComponents
			Controlling in devops ,GIT			Exam Online,Semester in Exam-I (MCQ)
6	CO2	COI-2	Introduction to Cloud Computing and types	Text Book[1]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-I (MCQ)
7	CO2	COI-2	Types of cloud platforms, introduction to infrastructure as a code	TEXT BOOK[2]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-I (MCQ)
8	CO2	COI-3	Architechture and Installation of terraform	Text Book[2]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-I (MCQ)
9	CO2	COI-3	Life cycle of Terraform tool	Text Book[2]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-I (MCQ)
10	CO2	COI-3	Ansible - Workflow, Terminologies, Installation	Text Book[3]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-I (MCQ)
11	CO3	COI-3	Introduction to containerization	Reference Book[2]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-II (MCQ)
12	CO3	COI-2	Docker Architecture	TEXT BOOK[2]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-II (MCQ)
13	CO3	COI-3	Handling Dockers Desktop	Reference web link[3]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-II (MCQ)
14	CO3	COI-3	Dockers Volumes	Weblink[3]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-II (MCQ)
15	CO3	COI-3	Networks of Docker Containers	Book [1]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-II (MCQ)
16	CO3	COI-3	Docker Compose	Weblink[3]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-II (MCQ)
17	CO3	COI-	Kubernetes Architecture	Weblink[3]	Chalk,LTC,PPT,Talk	ALM,End Semester

Sess.No.	CO	COI	Topic	Book No[CH No][Page No]	Teaching-Learning Methods	EvaluationComponents
		4	and pods in Kubernetes,			Exam Online,Semester in Exam-II (MCQ)
18	CO3	COI-4	Kubernetes Architecture and pods in Kubernetes,	Refrence Book[3]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-II (MCQ)
19	CO4	COI-2	Essentials of Continuous Integration	Reference Book[2]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Home Assignment,MOOCs Review,Semester in Exam-II (MCQ)
20	CO4	COI-3	Kubernetes Architecture and pods in Kubernetes,	Text Book[2]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-II (MCQ)
21	CO4	COI-4	Introduction to CI/CD Jenkins and its components Integrating jenkins with email and git	Text Book[2]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-II (MCQ)
22	CO4	COI-3	Pipelining using jenkins file	Text Book[2]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-II (MCQ)
23	CO4	COI-4	Integrating jenkins with email and git	Weblink[3]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-II (MCQ)
24	CO4	COI-4	Different Levels of Authentication	Text Book[3]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-II (MCQ)
25	CO4	COI-4	Jenkins and Dockers integration	Weblink[3]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-II (MCQ)
26	CO4	COI-4	Pipeline Maven Integration	TextBook[3]	Chalk,LTC,PPT,Talk	ALM,End Semester Exam Online,Semester in Exam-II (MCQ)

Lecture Session wise Teaching – Learning Plan

SESSION NUMBER : 1

Session Outcome: 1 Introduction to Devops & best practices of Devops

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Introduction to Devops & best practices of Devops	2	PPT	--- NOT APPLICABLE ---
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 2

Session Outcome: 1 Importance of networks in devops ,Protocols &Toplogies

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
10	ISO layers	2	PPT	Brain storming session
30	Importance of networks in devops ,Protocols &Toplogies	2	PPT	--- NOT APPLICABLE ---
5	Recap	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 3

Session Outcome: 1 Subnetting and Problems on Subnetting, Linux Fundamentals,

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	PPT	--- NOT APPLICABLE ---
40	Subnetting and Problems on Subnetting, Linux Fundamentals,	2	PPT	--- NOT APPLICABLE ---
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 4

Session Outcome: 1 Role of Version Controlling in Devops

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Role of Version Controlling in Devops	2	PPT	--- NOT APPLICABLE ---
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 5

Session Outcome: 1 Role of Version Controlling in devops ,GIT

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Role of Version Controlling in devops ,GIT	2	PPT	--- NOT APPLICABLE ---
20	GITBASH installation instructions	2	PPT	Video synthesis
5	Recap	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 6

Session Outcome: 1 Introduction to Cloud Computing and types

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Introduction to Cloud Computing and types,	2	PPT	--- NOT APPLICABLE ---
20	Cloud services and platforms available in market	3	PPT	--- NOT APPLICABLE ---
5	summary	2	PPT	--- NOT APPLICABLE

SESSION NUMBER : 7

Session Outcome: 2 Architecture and Installation of terraform

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Architecture and Installation of terraform	2	PPT	--- NOT APPLICABLE ---
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 8

Session Outcome: 2 Architechture and Installation of terraform

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	PPT	--- NOT APPLICABLE ---
20	IAC in devops is important Automation tool?	2	PPT	Statement-Opinion-Summary
20	Architechture and Installation of terraform	3	PPT	--- NOT APPLICABLE ---
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 9

Session Outcome: 2 Life cycle of Terraform tool

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	PPT	--- NOT APPLICABLE ---
40	Life cycle of Terraform tool	3	PPT	Think / Pair / Share

40	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 10

Session Outcome: 2 Ansible - Workflow, Terminologies, Installation

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Ansible - Workflow, Terminologies, Installation	2	PPT	--- NOT APPLICABLE ---
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 11

Session Outcome: 3 Dockers vs virtualization

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
10	Flaws in Virtualization	2	PPT	--- NOT APPLICABLE ---
30	Introduction to containerization	3	PPT	--- NOT APPLICABLE ---
5	summary	3	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 12

Session Outcome: 3 Docker Architecture

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---

40	Docker Architecture	3	PPT	--- NOT APPLICABLE ---
5	summary	3	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 13

Session Outcome: 3 Dockers desktop

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Dockers desktop	4	PPT	Just in-time teaching
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 14

Session Outcome: 3 Handling Data in Containers

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Handling Data in Containers	2	PPT	Peer Survey
20	Dockers Volume	4	PPT	--- NOT APPLICABLE ---
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 15

Session Outcome: 3 Networks of Docker Containers

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---

40	Networks of Docker Containers	2	PPT	--- NOT APPLICABLE ---
5	Summary	3	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 16

Session Outcome: 3 Docker Compose

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Docker Compose	2	PPT	--- NOT APPLICABLE ---
20	Handling multi conainers in dockers	3	PPT	--- NOT APPLICABLE ---
5	summary	3	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 17

Session Outcome: 3 Kubernetes Architecture and pods in Kubernetes,

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Kubernetes Architecture and pods in Kubernetes,	2	PPT	--- NOT APPLICABLE ---
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 18

Session Outcome: 3 Kubernetes Architecture and pods in Kubernetes,

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods

5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Kubernetes Architecture and pods in Kubernetes,	3	PPT	--- NOT APPLICABLE ---
5	summary	3	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 19

Session Outcome: 4 Kubernetes Architecture and pods in Kubernetes,

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Kubernetes Architecture and pods in Kubernetes,	3	PPT	--- NOT APPLICABLE ---
5	summary	4	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 20

Session Outcome: 4 Kubernetes Architecture and pods in Kubernetes,

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Kubernetes Architecture and pods in Kubernetes,	3	PPT	Immediate feedback
5	summary	1	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 21

Session Outcome: 4 Introduction to CI/CD Jenkins and its components Integrating jenkins with email and git

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods

5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Introduction to CI/CD Jenkins and its components Integrating jenkins with email and git	2	PPT	--- NOT APPLICABLE ---
5	summary	1	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 22

Session Outcome: 4 Pipelining using jenkins file

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Pipelining using jenkins file	3	PPT	--- NOT APPLICABLE ---
5	Recap	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 23

Session Outcome: 4 Integrating jenkins with email and git

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Integrating jenkins with email and git	3	PPT	--- NOT APPLICABLE ---
5	summary	3	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 24

Session Outcome: 4 Different Levels of Authentication

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods

5	Attendance	2	Talk	--- NOT APPLICABLE ---
40	Different Levels of Authentication	3	PPT	--- NOT APPLICABLE ---
5	Recap	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 25

Session Outcome: 4 Jenkins and Dockers integration

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	2	Talk	--- NOT APPLICABLE ---
20	Dockers hub credentials to pipeline	3	PPT	--- NOT APPLICABLE ---
20	Building with Docker Using Jenkins Pipelines	3	PPT	--- NOT APPLICABLE ---
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 26

Session Outcome: 4 Pipeline Maven Integration

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	maven Plugins	2	PPT	One minute paper
20	Pipeline Maven Integration	4	PPT	--- NOT APPLICABLE ---
5	Recap	2	PPT	--- NOT APPLICABLE ---

Tutorial Course DELIVERY Plan: NO Delivery Plan Exists

Tutorial Session wise Teaching – Learning Plan

No Session Plans Exists

Practical Course DELIVERY Plan:

Tutorial Session no	Topics	CO-Mapping
1	Git operations	CO5
2	Linux Operations /	CO5
3	Bash Scripting	CO5
4	Creating EC@ using terraform tool	CO5
5	Creating S3 bucket using Terraform	CO5
6	Example lab for Terraform Variables	CO5
7	terraform modules example programs	CO5
8	Ansible Configuring	CO5
9	Two tier Application using dockers	CO5
10	Dockers images creation using dockerfile	CO5
11	Creating Volume in Dockers	CO5
12	Jenkins job creation	CO5
13	jenkins pipeline creation	CO5

Practical Session wise Teaching – Learning Plan

SESSION NUMBER : 1

Session Outcome: 1 Git operations

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Git bash installation	3	PPT	--- NOT APPLICABLE

50	Git commands	4	PPT	--- NOT APPLICABLE ---
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 2

Session Outcome: 5 Linux Operations /commands

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Virtual box	2	PPT	--- NOT APPLICABLE ---
40	Linux Operations /commands	3	PPT	--- NOT APPLICABLE ---
10	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 3

Session Outcome: 5 Bash Scripting

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Bash Scripting	2	PPT	--- NOT APPLICABLE ---
40	Bash Scripting	4	PPT	--- NOT APPLICABLE ---
10	summary	4	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 4

Session Outcome: 5 Creating EC@ using terraform tool

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Terraform installation	2	PPT	--- NOT APPLICABLE ---
40	Creating EC@ using terraform tool	4	PPT	--- NOT APPLICABLE ---
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 5

Session Outcome: 5 Creating S3 bucket using Terraform

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Creating S3 bucket using Terraform	3	PPT	--- NOT APPLICABLE ---
40	Creating S3 bucket using Terraform	4	PPT	--- NOT APPLICABLE ---
10	summary	1	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 6

Session Outcome: 5 Example lab for Terraform Variables

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Example lab for Terraform Variables	3	PPT	--- NOT APPLICABLE ---
40	Example lab for Terraform Variables	4	PPT	--- NOT APPLICABLE

10	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 7

Session Outcome: 5 terraform modules example programs

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Attendance	1	Talk	--- NOT APPLICABLE ---
40	terraform modules	3	PPT	--- NOT APPLICABLE ---
40	terraform modules example programs	4	PPT	--- NOT APPLICABLE ---
10	recap	1	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 8

Session Outcome: 5 Ansible configuring

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Ansible configuring	3	PPT	--- NOT APPLICABLE ---
40	Ansible configuring	4	PPT	--- NOT APPLICABLE ---
10	summary	1	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 9

Session Outcome: 5 Two tier Application

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Attendance	1	PPT	--- NOT APPLICABLE ---
40	Dockers Application	3	PPT	--- NOT APPLICABLE ---
40	Two tier application	4	PPT	--- NOT APPLICABLE ---
10	summary	1	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 10

Session Outcome: 5 Dockers images creation using dockerfile

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Dockers images	3	PPT	--- NOT APPLICABLE ---
40	creation using dockerfile	4	PPT	--- NOT APPLICABLE ---
10	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 11

Session Outcome: 5 Creating Volume in Dockers

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Installing Dockers Volume	3	PPT	--- NOT APPLICABLE ---
40	Dockers Volume	4	PPT	--- NOT APPLICABLE

10	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 12

Session Outcome: 5 Jenkins job creation

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Attendance	1	Talk	--- NOT APPLICABLE ---
40	jenkins installtion	3	PPT	--- NOT APPLICABLE ---
40	Jenkins job creation	4	PPT	--- NOT APPLICABLE ---
10	summary	1	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 13

Session Outcome: 5 jenkins pipeline creation

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Attendance	1	Talk	--- NOT APPLICABLE ---
40	jenkins pipeline creation	3	PPT	--- NOT APPLICABLE ---
40	jenkins pipeline creation	4	PPT	--- NOT APPLICABLE ---
10	summary	1	PPT	--- NOT APPLICABLE ---

Skilling Course DELIVERY Plan: NO Delivery Plan Exists

Skilling Session wise Teaching – Learning Plan

No Session Plans Exists

WEEKLY HOMEWORK ASSIGNMENTS/ PROBLEM SETS/OPEN ENDEDED PROBLEM-SOLVING EXERCISES etc:

Week	Assignment Type	Assignment No	Topic	Details	co

COURSE TIME TABLE:

	Hour	1	2	3	4	5	6	7	8	9
Day	Component									
Mon	Theory	--	--	--	--	--	--	--	--	--
	Tutorial	--	--	--	--	--	--	--	--	--
	Lab	--	--	--	--	--	--	--	--	--
	Skilling	--	--	--	--	--	--	--	--	--
Tue	Theory	V-S12	V-S12	---	---	---	---	---	---	---
	Tutorial	--	--	---	---	---	---	---	---	---
	Lab	V-S14,V-S14,V-S14	V-S14,V-S14,V-S14	---	---	---	---	---	---	---
	Skilling	--	--	---	---	---	---	---	---	---
Wed	Theory	V-S13,V-S14	V-S13,V-S14	---	---	---	---	---	---	---
	Tutorial	--	--	---	---	---	---	---	---	---
	Lab	V-S12,V-S12,V-S12	V-S12,V-S12,V-S12	---	---	---	---	---	---	---
	Skilling	--	--	---	---	---	---	---	---	---
Thu	Theory	--	--	--	--	--	--	--	--	--
	Tutorial	--	--	--	--	--	--	--	--	--
	Lab	--	--	--	--	--	--	--	--	--
	Skilling	--	--	--	--	--	--	--	--	--
Fri	Theory	--	--	---	---	---	---	---	---	---
	Tutorial	--	--	---	---	---	---	---	---	---
	Lab	V-S13,V-S13,V-S13,V-S13,V-S13	V-S13,V-S13,V-S13,V-S13,V-S13	---	---	---	---	---	---	---
	Skilling	--	--	---	---	---	---	---	---	---
Sat	Theory	--	--	--	--	--	--	--	--	--
	Tutorial	--	--	--	--	--	--	--	--	--
	Lab	--	--	--	--	--	--	--	--	--
	Skilling	--	--	--	--	--	--	--	--	--

Sun	Theory	--	--	--	--	--	--	--	--	--
	Tutorial	--	--	--	--	--	--	--	--	--
	Lab	--	--	--	--	--	--	--	--	--
	Skilling	--	--	--	--	--	--	--	--	--

REMEDIAL CLASSES:

Supplement course handout, which may perhaps include special lectures and discussions that would be planned, and schedule notified according

SELF-LEARNING:

Assignments to promote self-learning, survey of contents from multiple sources.

S.no	Topics	CO	ALM	References/MOOCS
6	Kubernetes	CO4	Leading question	1. Hands-On Azure Devops: Cicd Implementation For Mobile, Hybrid, And Web Applications Using Azure Devops And Microsoft Azure: CICD Implementation for ... DevOps and Microsoft Azure (English Edition) Paperback – 1 January 2020 2. by Mitesh Soni 3. Jeff Geerling, "Ansible for DevOps: Server and configuration management for humans", First Edition, 2015. 4. David Johnson, "Ansible for DevOps: Everything You Need to Know to Use Ansible for DevOps", Second Edition, 2016. 5. Mariot Tsitoara, "Ansible 6. Beginning Git and GitHub: A Comprehensive Guide to Version Control, Project Management, and Teamwork for the New Developer", Second Edition, 2019. 6. https://www.jenkins.io/user-handbook.pdf 7. https://maven.apache.org/guides/getting-started/

DELIVERY DETAILS OF CONTENT BEYOND SYLLABUS:

Content beyond syllabus covered (if any) should be delivered to all students that would be planned, and schedule notified accordingly.

S.no	Advanced Topics, Additional Reading, Research papers and any	CO	ALM	References/MOOCS

EVALUATION PLAN:

Evaluation Type	Evaluation Component	Weightage/Marks		Assessment Dates	Duration (Hours)	CO1	CO2	CO3	CO4	CO5
End Semester Summative Evaluation Total= 40 %	Lab End Semester Exam	Weightage	10		120					10
		Max Marks	50							50
	End Semester Exam (online MCQ)	Weightage	10		180	2.5	2.5	2.5	2.5	
		Max Marks	100			25	25	25	25	
	SEM End Project	Weightage	20		120					20
		Max Marks	50							50
In Semester Formative Evaluation Total= 25 %	Continuous Evaluation - Project	Weightage	5		150					5
		Max Marks	50							50
	Continuous Evaluation - Lab Exercise	Weightage	10		140					10
		Max Marks	50							50
	ALM	Weightage	10		140	2.5	2.5	2.5	2.5	
		Max Marks	40			10	10	10	10	
In Semester Summative Evaluation Total= 35 %	Semester in Exam-II (MCQ)	Weightage	10		60			5	5	
		Max Marks	50					25	25	
	Semester in Exam-I (MCQ)	Weightage	10		60	5	5			
		Max Marks	50			25	25			
	Project-Evaluation	Weightage	10		150					10
		Max Marks	50							50
	MOOCs Certification	Weightage	5		120					5
		Max Marks	50							50

ATTENDANCE POLICY:

Every student is expected to be responsible for regularity of his/her attendance in class rooms and laboratories, to appear in scheduled tests and examinations and fulfill all other tasks assigned to him/her in every course
In every course, student has to maintain a minimum of 85% attendance to be eligible for appearing in Semester end examination of the course, for cases of medical issues and other unavoidable circumstances the students will be condoned if their attendance is between 75% to 85% in every course, subjected to submission of medical certificates, medical case file and other needful documental proof to the concerned departments

DETENTION POLICY :

In any course, a student has to maintain a minimum of 85% attendance and In-Semester Examinations to be eligible for appearing to the Semester End Examination, failing to fulfill these conditions will deem such student to have been detained in that course.

PLAGIARISM POLICY :

Supplement course handout, which may perhaps include special lectures and discussions

COURSE TEAM MEMBERS, CHAMBER CONSULTATION HOURS AND CHAMBER VENUE DETAILS:

Supplement course handout, which may perhaps include special lectures and discussions

Name of Faculty	Delivery Component of Faculty	Sections of Faculty	Chamber Consultation Day (s)	Chamber Consultation Timings for each day	Chamber Consultation Room No:	Signature of Course faculty:
Venkata Kasula	P	13-B,13-C	-	-	-	-
Surya Sasank Visamsetty	P	13-B,13-C	-	-	-	-
Bindu G	L	14-MA	-	-	-	-
Bindu G	P	14-A	-	-	-	-
sambasivarao lankoji	P	14-C	-	-	-	-
RAJESHKUMAR K	P	14-B	-	-	-	-
Anjaneyulu Gurram	L	12-MA	-	-	-	-
Anjaneyulu Gurram	P	12-A	-	-	-	-
Sathviki Rompicherla	L	13-MA	-	-	-	-
Sathviki Rompicherla	P	13-A	-	-	-	-
ARUNDATHI JILLAPALLI	P	12-C	-	-	-	-
Spandana Mande	P	12-B	-	-	-	-

GENERAL INSTRUCTIONS

Students should come prepared for classes and carry the text book(s) or material(s) as prescribed by the Course Faculty to the class.

NOTICES

Most of the notices are available on the LMS platform.

All notices will be communicated through the institution email.

All notices concerning the course will be displayed on the respective Notice Boards.

Signature of COURSE COORDINATOR

(Bindu G)

Signature of Department Prof. Incharge Academics & Vetting Team Member

Department Of CS&IT

HEAD OF DEPARTMENT:

Approval from: DEAN-ACADEMICS
(Sign with Office Seal) [object HTMLDivElement]