K L Deemed to be University
Department of Computer Science and Engineering-Honors -- KLVZA
Course Handout
2023-2024, Even Sem

Course Title	:CONTINUOUS DELIVERY AND DEVOPS
Course Code	:21CI3246A
L-T-P-S Structure	: 3-0-4-4
Pre-requisite	:
Credits	: 6
Course Coordinator	:Anjana Devi Akurathi
Team of Instructors	:
Teaching Associates	:

Syllabus : Introduction to DevOps, Overview of DevOps, Relationship Between Agile and DevOps, Principles of DevOps, DevOps Tools, Best Practices for DevOps. Version Control Systems: Role of Version Control System in DevOps Environment, GitHub, Deploy the files to Bitbucket via Git.Linux and Bash scripting Need of Cloud in DevOps: Popular Cloud Providers, CI/CD in AWS and Azure, CI/CD Services in AWS. Continuous Integration and Continuous Deployment using Jenkins, Continuous Integration with Jenkins, Git, and Maven, Build Applications using Pipeline on azure platform. Software and Automation Testing Frameworks: Popular Testing Tools, Test Driven Development Cycle, Behavior driven development, Automated Testing using Cucumber.Git CI for continuous Integration, Docker as Containerization: Virtualization, Docker on Windows Desktop, Creating an Account in Docker Hub, MySQL in Docker Kubernetes,Kubernetes: Components, Kubernetes Architecture, Minikube, Pod Configuration on Windows. Terraform, , configuring a virtual machine in Amazon EC2 & Microsoft Azure using Terraform Configuration management using puppet, Docker Swarm, Role of Infrastructure as Code in DevOps EnvironmentContinuous Monitoring: Role of Monitoring Systems, Types of Monitoring, Popular Monitoring Tools: Nagios, Orchestrating application deployment. Creating build jobs for end-to-end automation, Executing the pipeline for application deployment automation. Zenos Monitoring tools, Splunk.

Text Books :1. DevOps for Web Development Mitesh Soni 1 Packt 2. Beginning DevOps With Docker Joseph Muli 1 Packt 3. Kubernetes Up and Running Divine into the Feature of Infrastructure "Brendan Burns, Joe Beda & Kelsey Hightower" 2 Oreilly 4. The DevOps Handbook: How to Create World-Class Agility, Reliability, & Security in Technology Organizations Gene Kim , Jez Humble , et al. 2 Revolution Press; 2nd ed. edition (30 November 2021); BOOKZONE PATEL BUILDING R.NO 8/9 1ST FLOOR M.K AMIN MARG FORT MUMBAI 400001 – 7738588170 5. Continuous Delivery for Java Apps: Build a CD Pipeline Step by Step Using Kubernetes, Docker, Vagrant, Jenkins, Spring, Maven and Artifactory Jorge Acetozi 1 Leanpub (14 December 2017)

Reference Books :1. Enterprise DevOps on Amazon Web Services: Releasing Software to Production at Any Time with AWS 1st Edition. Addison Wesley; 1st edition (7 January 2027)

Web Links :1. Jenkins Jenkins Documentation https://www.jenkins.io/doc/ 2. Core Concepts Devops Tutorial https://www.javatpoint.com/devops 3. Dockers & Kubernetes Dockers& Kubernetes for Beginers https://www.mygreatlearning.com/academy/learn-for-free/courses/docker-for-intermediate-level 4. EPAM Devops tools, Networking and linux https://training.epam.com/News/Items/108?lang=en 5. Git Git Documentation https://git-scm.com/doc

MOOCS :1. DevOps Culture and Mindset Coursera https://www.coursera.org/programs/cse-faculty-courses-an6zm/browse?collectionId=&productId=Q5Krn5BMEei3MQqxoqmsBA&productType=course&query=continuous+delivery+and+devops++course&showMiniModal=true&source=2 2. Continuous Delivery and Release Pipelines with Azure DevOps" Coursera https://www.coursera.org/programs/cse-faculty-courses-an6zm/browse?collectionId=&productId=DBqDhXrGEey1tgpUmO8AYQ&productType=course&query=continuous+delivery+and+devops++course&showMiniModal=true&source=2 3. "Git Complete: The definitive, step-by-step guide to Git " Udemy "https://www.udemy.com /course/git-complete /?utm_source=adwords&utm_medium=udemyads&utm_campaign=DSA_Catchall_la.EN_cc.INDIA&utm_content=deal4584&utm_term=_._ag_82569850245_._ad_533220805577_._kw__._de_c_._dm__._pl__._ti_dsa-406594358574_._li_9040204_._pd__._&matchtype=&gclid=CjwKCAjw6vyiBhB_EiwAQJRopv3btOo8gq3DYRizBrnf-IEGXUiJHOW6BcfH4vmlI1HkhZni__vY8BoCV9YQAvD_BwE" 4. Introduction to Containers w/ Docker, Kubernetes & OpenShift Coursera https://in.coursera.org/learn/ibm-containers-docker-kubernetes-openshift

COURSE OUTCOMES (COs):

CO NO	Course Outcome (CO)	PO/PSO	Blooms Taxonomy

			Level (BTL)
CO1	Identify the Need of DevOps in SDLC and Cloud Infrastructure in DevOps, Apply Version Control System to track the latest version of Software	PSO1,PO1,PO2	3
CO2	Analyze Continuous Integration and Continuous Deployment using Infrastructure as Code, Build in Cloud native Applications using Pipeline and Examine the Software and Automation Testing Frameworks	PSO2,PO2,PO5	4
CO3	Analyze need of Containerization in SDLC and Examine the Kubernetes Pod Configuration	PSO2,PO1,PO5	4
CO4	Inspect Configuration Management using Infrastructure as Code, Analyze Continuous Monitoring and Container Orchestration process.	PO5,PSO2,PO3	4
CO5	Build and Inspect the Tools associated to DevOps Life Cycle	PSO2,PO2,PO5	5

COURSE OUTCOME INDICATORS (COIs)::

Outcome No.	Highest BTL	COI-1	COI-2	COI-3	COI-4	COI-5
CO1	3	**Btl-1** 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	**Btl-3** Identify the best practices of DevOps, Utilize Git and Bitbucket for Version Control and Utilize the cloud for CI/CD process		
CO2	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	
CO3	4		**Btl-2** Compare Docker with virtualization, Outline Kubernetes and Chef.	**Btl-3** Build applications using Docker, Kubernetes and Ansible	**Btl-4** Inspect the working behavior of Docker, Kubernetes and Chef tools	
CO4	4				**Btl-4** Compare and Contrast Configuration Management tools,Examine Nagios and InspectOrchestration Process	
CO5	5				**Btl-4** Build and Inspect the Tools associated to DevOps Life Cycle	**Btl-5** Build and Inspect the Tools associated to 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.
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
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
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.
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.
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.
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
PO8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice
PO9	Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
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
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.
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.
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-2	Introduction to DevOps: Overview of DevOps, Relationship Between Agile and DevOps, Principles of DevOps, Benefits of devops	TBOOK[1],CH1.Pageno8-13	LTC,PPT,Talk	ALM,End Semester Exam,Home Assignment,MOOCs Certification,MOOCs Review,SEM-EXAM1
2	CO1	COI-2	Devops life cycle	T BOOK [1], CH 1,Page no 19-24, 27-34,35-38	PPT,Talk	ALM,End Semester Exam,Home Assignment,MOOCs Certification,MOOCs Review,SEM-EXAM1
3	CO1	COI-3	DevOps Tools & Technologies, Best Practices for DevOps.	T BOOK [1], CH1,Page no 15-18	PPT,Talk	SEM-EXAM1

Sess.No.	CO	COI	Topic	Book No[CH No][Page No]	Teaching-Learning Methods	EvaluationComponents
4	CO1	COI-3	Version Control Systems: Role of Version Control System in DevOps Environment, GitHub, Deploy the files to Bitbucket via Git.	Web Reference	LTC,PPT,Talk	SEM-EXAM1
5	CO1	COI-2	Need of Cloud in DevOps: Popular Cloud Providers	Web Reference	PPT,Talk	SEM-EXAM1
6	CO1	COI-2	CI/CD services in AWS and Azure	Web Reference	PPT,Talk	SEM-EXAM1
7	CO1	COI-3	Linux and Bash scripting	web reference	LTC,PPT,Talk	SEM-EXAM1
8	CO2	COI-2	Continuous Integration and Continuous Deployment using Jenkins	web reference	LTC,PPT,Talk	ALM,End Semester Exam,Home Assignment,MOOCs Certification,MOOCs Review,SEM-EXAM1
9	CO2	COI-4	Continuous Integration with Jenkins, Git, and Maven	T BOOK [1], CH1, Page no15-18	LTC,PPT,Talk	SEM-EXAM1
10	CO2	COI-4	Build Applications using Pipeline on azure platform	Web Reference	LTC,PPT,Talk	SEM-EXAM1
11	CO2	COI-2	Software and Automation Testing Frameworks: Popular Testing Tools	Web Reference	LTC,PPT,Talk	SEM-EXAM1
12	CO2	COI-3	Test Driven Development Cycle	Web Reference	PPT,Talk	SEM-EXAM1
13	CO2	COI-3	Behavior driven development, Automated Testing using Cucumber	Web Reference	PPT,Talk	SEM-EXAM1
14	CO2	COI-4	Git CI for continuous Integration	Web Reference	PPT,Talk	SEM-EXAM1
15	CO3	COI-2	Configuration management: Overview	Web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,MOOCs Certification,MOOCs Review,SEM-EXAM2

Sess.No.	CO	COI	Topic	Book No[CH No][Page No]	Teaching-Learning Methods	EvaluationComponents
16	CO3	COI-3	Installing and configuring Chef	Web Reference	LTC,PPT,Talk	SEM-EXAM2
17	CO3	COI-4	Installing and configuring Ansible, Configuring a virtual machine in Amazon EC2	Web reference	LTC,PPT,Talk	SEM-EXAM2
18	CO3	COI-2	Overview of Dockercontainers, understanding the difference between virtual machines and containers	T BOOK [1],CH5, Page no178-184	PPT,Talk	SEM-EXAM2
19	CO3	COI-4	Installing and configuring Docker on windows, creating your first Docker container, Understanding the client- server architecture of docker.	T BOOK [1], CH5, Page no 185-191	LTC,PPT,Talk	SEM-EXAM2
20	CO3	COI-4	Managing containers, Creating a Docker image from Dockerfile	T BOOK [1], CH7, Page no 233-235	LTC,PPT,Talk	SEM-EXAM2
21	CO3	COI-3	Kubernetes and its Components, Kubernetes Architecture	Web Reference	PPT,Talk	SEM-EXAM2
22	CO3	COI-4	Minikube, Pod Configuration on Windows	Web Reference	LTC,PPT,Talk	SEM-EXAM2
23	CO3	COI-4	Terraform	Web Reference	LTC,PPT,Talk	SEM-EXAM2
24	CO3	COI-4	configuring a virtual machine in Amazon EC2 & Microsoft Azure using Terraform	Web Reference	PPT,Talk	SEM-EXAM2
25	CO3	COI-4	Configuration management using puppet	Web reference	PPT,Talk	SEM-EXAM2
26	CO3	COI-4	Docker Swarm	Web Reference	PPT,Talk	SEM-EXAM2
27	CO4	COI-4	Monitoring Infrastructure and Applications:	T BOOK [1], CH8,Page no281-302	PPT,Talk	ALM,End Semester Exam,Home Assignment,MOOCs

Sess.No.	CO	COI	Topic	Book No[CH No][Page No]	Teaching-Learning Methods	EvaluationComponents
			Overview			Certification,MOOCs Review,SEM-EXAM2
28	CO4	COI-4	Understanding the DevOps approach to monitoring	Web reference	PPT,Talk	SEM-EXAM2
29	CO4	COI-4	Types of continuous monitoring ,Popular Monitoring Tools: Nagios	T BOOK [1], CH8, Page no 303-305	PPT,Talk	SEM-EXAM2
30	CO4	COI-4	Orchestrating application deployment: Creating build jobs for end- to-end automation	Web reference	LTC,PPT,Talk	SEM-EXAM2
31	CO4	COI-4	Configuring SSH Authentication using a key and Configuring the build pipeline for build job orchestration	Web reference	PPT,Talk	SEM-EXAM2
32	CO4	COI-4	Executing the pipeline for application deployment automation	Web reference	PPT,Talk	SEM-EXAM2
33	CO4	COI-4	Zenos Monitoring tools	Web Reference	PPT,Talk	SEM-EXAM2
34	CO4	COI-4	Splunk	Web reference	PPT,Talk	SEM-EXAM2
35	CO4	COI-4	Relic	Web Reference	PPT,Talk	SEM-EXAM2
36	CO4	COI-4	AWS Elastic Container Service	Web reference	PPT,Talk	SEM-EXAM2

Lecture Session wise Teaching – Learning Plan

SESSION NUMBER : 1

Session Outcome: 1 Introduction to DevOps: Overview of DevOps, Relationship Between Agile and DevOps, Principles of DevOps, Benefits of devops

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Introduction to DevOps: Overview of DevOps, Relationship Between Agile and DevOps, Principles of DevOps	2	PPT	--- NOT APPLICABLE ---

20	Benefits of devops	2	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 2

Session Outcome: 1 Devops life cycle

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Devops life cycle	2	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 3

Session Outcome: 1 DevOps Tools & Technologies, Best Practices for DevOps.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	DevOps Tools & Technologies, Best Practices for DevOps.	2	PPT	One minute paper
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 4

Session Outcome: 1 Version Control Systems: Role of Version Control System in DevOps Environment, GitHub, Deploy the files to Bitbucket via Git.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Version Control Systems: Role of Version Control System in DevOps Environment, GitHub	3	LTC	--- NOT APPLICABLE ---
20	Deploy the files to Bitbucket via Git.	3	LTC	Just in-time teaching
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 5

Session Outcome: 1 Need of Cloud in DevOps: Popular Cloud Providers

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

5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Need of Cloud in DevOps: Popular Cloud Providers	2	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 6

Session Outcome: 1 CI/CD services in AWS and Azure

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	CI/CD services in AWS and Azure	2	PPT	One minute paper
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 7

Session Outcome: 1 Linux and Bash scripting

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Linux scripting	3	PPT	--- NOT APPLICABLE ---
20	Bash scripting	3	LTC	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 8

Session Outcome: 1 Continuous Integration and Continuous Deployment using Jenkins

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Continuous Integration and Continuous Deployment using Jenkins	2	PPT	--- NOT APPLICABLE ---
5	Summary	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 9

Session Outcome: 1 Continuous Integration with Jenkins, Git, and Maven

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Continuous Integration with Jenkins, Git, and Maven	4	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 10

Session Outcome: 1 Build Applications using Pipeline on azure platform

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Build Applications using Pipeline on azure platform	4	LTC	Quiz/Test Questions
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 11

Session Outcome: 1 Software and Automation Testing Frameworks: Popular Testing Tools

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Software and Automation Testing Frameworks: Popular Testing Tools	2	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 12

Session Outcome: 1 Test Driven Development Cycle

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Test Driven Development Cycle	3	PPT	Immediate feedback
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 13

Session Outcome: 1 Behavior driven development, Automated Testing using Cucumber

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Behavior driven development, Automated Testing using Cucumber	3	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 14

Session Outcome: 1 Git CI for continuous Integration

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Git CI for continuous Integration	4	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 15

Session Outcome: 1 Configuration management: Overview

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Chalk	--- NOT APPLICABLE ---
40	Configuration management: Overview	2	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 16

Session Outcome: 1 Installing and configuring Chef,

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Installing and configuring Chef	3	LTC	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 17

Session Outcome: 1 Installing and configuring Ansible, Configuring a virtual machine in Amazon EC2

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Installing and configuring Ansible, Configuring a virtual machine in Amazon EC2	4	LTC	Case Study
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 18

Session Outcome: 1 Overview of Dockercontainers, understanding the difference between virtual machines and containers

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Overview of Dockercontainers	2	PPT	--- NOT APPLICABLE ---
20	understanding the difference between virtual machines and containers	2	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 19

Session Outcome: 1 Installing and configuring Docker on windows, creating your first Docker container, Understanding the client- server architecture of docker.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Installing and configuring Docker on windows, creating your first Docker container, Understanding the client-server architecture of docker.	2	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 20

Session Outcome: 1 Managing containers, Creating a Docker image from Dockerfile

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Managing containers, Creating a Docker image from Dockerfile	4	LTC	Case Study

5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 21

Session Outcome: 1 Kubernetes and its Components, Kubernetes Architecture

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Kubernetes and its Components, Kubernetes Architecture	3	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 22

Session Outcome: 1 Minikube, Pod Configuration on Windows

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Minikube, Pod Configuration on Windows	4	LTC	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 23

Session Outcome: 1 Terraform

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Terraform	4	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 24

Session Outcome: 1 configuring a virtual machine in Amazon EC2 & Microsoft Azure using Terraform

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

40	configuring a virtual machine in Amazon EC2 & Microsoft Azure using Terraform	4	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 25

Session Outcome: 1 Configuration management using puppet

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Configuration management using puppet	4	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 26

Session Outcome: 1 Docker Swarm

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Docker Swarm	4	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 27

Session Outcome: 1 Monitoring Infrastructure and Applications: Overview

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Monitoring Infrastructure and Applications: Overview	4	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 28

Session Outcome: 1 Understanding the DevOps approach to monitoring

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

5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Understanding the DevOps approach to monitoring	4	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 29

Session Outcome: 1 Types of continuous monitoring ,Popular Monitoring Tools: Nagios

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Types of continuous monitoring ,Popular Monitoring Tools: Nagios	4	PPT	Immediate feedback
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 30

Session Outcome: 1 Orchestrating application deployment: Creating build jobs for end- to-end automation

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Orchestrating application deployment: Creating build jobs for end- to-end automation	4	PPT	Focused listing
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 31

Session Outcome: 1 Configuring SSH Authentication using a key and Configuring the build pipeline for build job orchestration

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Configuring SSH Authentication using a key and Configuring the build pipeline for build job orchestration	4	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 32

Session Outcome: 1 Executing the pipeline for application deployment automation

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

5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Executing the pipeline for application deployment automation	4	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 33

Session Outcome: 1 Zenos Monitoring tools

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Zenos Monitoring tools	4	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 34

Session Outcome: 1 Splunk

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Splunk	4	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 35

Session Outcome: 1 Relic

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Relic	4	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 36

Session Outcome: 1 AWS Elastic Container Service

Time(min)	Topic	BTL	Teaching-Learning	Active Learning

			Methods	Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	AWS Elastic Container Service	4	PPT	--- NOT APPLICABLE ---
5	Summary	1	Talk	--- 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	Deploy the files to Git Hub via Git	CO5
2	Deploy the files to Bitbucket via Git	CO5
3	Continuous Integration for Email using Jenkins plugins	CO5
4	Build Python Application From The Azure Platform	CO5
5	Creating and Cofiguring a build job for a Java Application with Maven	CO5
6	Use CI/CD To Deploy A Java Web App To Azure App Service	CO5
7	Test Driven Development with JUnit 5	CO5
8	Automated Testing Using Cucumber	CO5
9	Configure Amazon Ec2 instances using Ansible	CO5
10	Creating An Account In Docker Hub and Docker Toolbox Installation	CO5
11	Build a HTML Application From The Azure Pipelines	CO5
12	Implement Mysql In Docker	CO5
13	Create and deploy 3-tier web application using Docker	CO5
14	Implement Kubernetes on Windows Using Minikube	CO5
15	Implement Working With Nagios Monitoring Tool	CO5

Practical Session wise Teaching – Learning Plan

SESSION NUMBER : 1

Session Outcome: 1 Deploy the files to Git Hub via Git

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

5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Deploy the files to Git Hub via Git	4	LTC	--- NOT APPLICABLE ---
50	Student Practice	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 2

Session Outcome: 1 Deploy the files to Bitbucket via Git

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Deploy the files to Bitbucket via Git	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 3

Session Outcome: 1 Implement a basic branching and merching to deploy an application

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Implement a basic branching and merching to deploy an application	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 4

Session Outcome: 1 Develop a process for Continuous Integration with Jenkins, and Maven in Ubuntu

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Develop a process for Continuous Integration with Jenkins, and Maven in Ubuntu	4	PPT	--- NOT APPLICABLE ---
50	Students Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 5

Session Outcome: 1 Creating and Cofiguring a build job for a Java Application with Maven

Time(min)	Topic	BTL	Teaching-Learning	Active Learning

			Methods	Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Creating and Cofiguring a build job for a Java Application with Maven	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 6

Session Outcome: 1 Use CI/CD To Deploy A Java Web App To Azure App Service

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Use CI/CD To Deploy A Java Web App To Azure App Service	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 7

Session Outcome: 1 Test Driven Development with JUnit 5

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Test Driven Development with JUnit 5	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 8

Session Outcome: 1 Automated Testing Using Cucumber

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Automated Testing Using Cucumber	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 9

Session Outcome: 1 Configure Amazon Ec2 instances using Ansible

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Configure Amazon Ec2 instances using Ansible	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 10

Session Outcome: 1 Creating An Account In Docker Hub and Docker Toolbox Installation

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Creating An Account In Docker Hub and Docker Toolbox Installation	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 11

Session Outcome: 1 Build a HTML Application From The Azure Pipelines

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Build a HTML Application From The Azure Pipelines	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 12

Session Outcome: 1 Implement Mysql In Docker

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Implement Mysql In Docker	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 13

Session Outcome: 1 Implement Mysql In Docker

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Implement Mysql In Docker	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 14

Session Outcome: 1 Implement Kubernetes on Windows

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Implement Kubernetes on Windows	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 15

Session Outcome: 1 Implement Working With Nagios Monitoring Tool

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	mplement Working With Nagios Monitoring Tool	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

Skilling Course DELIVERY Plan:

Skilling session no	Topics/Experiments	CO-Mapping
1	Deploy to GitHub via Git in Ubuntu	CO5
2	Deploy the files to Bitbucket via Git in Ubuntu	CO5
3	Install and Configure Jenkins in Ubuntu	CO5
4	Continuous Integration with Jenkins, Git, and Maven in Ubuntu	CO5
5	TDD with JUnit 5 in Ubuntu	CO5

Skilling session no	Topics/Experiments	CO-Mapping
6	Creating a groovy script to build a job in pipeline for compiling and executing test units	CO5
7	Implement CI/CD To Deploy A Java Web App To Azure App Service	CO5
8	Implement Build Pipeline Plugin in jenkinS	CO5
9	Implement docker file creation & docker networking	CO5
10	Write the procedure to install Kubernetes in Ubuntu	CO5
11	List the commands to add a Linux Node to the Kubernetes Cluster	CO5
12	Creating and Configuring a virtual machine in Amazon EC2 & Microsoft Azure	CO5
13	Implement Continuous Monitoring with ELK Tool in Ubuntu	CO5
14	Implement Continuous Monitoring with Grafana Tool in Ubuntu	CO5
15	Implement Continuous Monitoring with Zabbix	CO5

Skilling Session wise Teaching – Learning Plan

SESSION NUMBER : 1

Session Outcome: 1 Deploy to GitHub via Git in Ubuntu

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Deploy to GitHub via Git in Ubuntu	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 2

Session Outcome: 1 Deploy the files to Bitbucket via Git in Ubuntu

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Deploy the files to Bitbucket via Git in Ubuntu	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 3

Session Outcome: 1 Install and Configure Jenkins in Ubuntu

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Install and Configure Jenkins in Ubuntu	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 4

Session Outcome: 1 Continuous Integration with Jenkins, Git, and Maven in Ubuntu

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Continuous Integration with Jenkins, Git, and Maven in Ubuntu	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 5

Session Outcome: 1 TDD with JUnit 5 in Ubuntu

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	TDD with JUnit 5 in Ubuntu	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 6

Session Outcome: 1 Creating a groovy script to build a job in pipeline for compiling and executing test units

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Creating a groovy script to build a job in pipeline for compiling and executing test units	1	PPT	--- NOT APPLICABLE ---
50	Student Practice	1	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 7

Session Outcome: 1 Implement CI/CD To Deploy A Java Web App To Azure App Service

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Implement CI/CD To Deploy A Java Web App To Azure App Service	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 8

Session Outcome: 1 Implement Build Pipeline Plugin in jenkinS

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Implement Build Pipeline Plugin in jenkinS	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 9

Session Outcome: 1 Implement docker file creation & docker networking

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Implement docker file creation & docker networking	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 10

Session Outcome: 1 Write the procedure to install Kubernetes in Ubuntu

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Write the procedure to install Kubernetes in Ubuntu	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE

SESSION NUMBER : 11

Session Outcome: 1 List the commands to add a Linux Node to the Kubernetes Cluster

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	List the commands to add a Linux Node to the Kubernetes Cluster	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 12

Session Outcome: 1 Creating and Configuring a virtual machine in Amazon EC2 & Microsoft Azure

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Creating and Configuring a virtual machine in Amazon EC2 & Microsoft Azure	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 13

Session Outcome: 1 Implement Continuous Monitoring with ELK Tool in Ubuntu

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Implement Continuous Monitoring with ELK Tool in Ubuntu	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 14

Session Outcome: 1 Implement Continuous Monitoring with Grafana Tool in Ubuntu

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Implement Continuous Monitoring with Grafana Tool in Ubuntu	4	PPT	--- NOT APPLICABLE ---

50	Student Practice	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 15

Session Outcome: 1 Implement Continuous Monitoring with Zabbix

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Implement Continuous Monitoring with Zabbix	4	PPT	--- NOT APPLICABLE ---
50	Student Practice	5	LTC	--- NOT APPLICABLE ---

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	---	---	V-S31,V-S32	V-S31,V-S32	--	--	---	---	---
	Tutorial	---	---	--	--	--	--	---	---	---
	Lab	---	---	--	--	V-S31	V-S31	---	---	---
	Skilling	---	---	--	--	--	--	---	---	---
Tue	Theory	---	---	---	---	---	---	---	---	---
	Tutorial	---	---	---	---	---	---	---	---	---
	Lab	---	---	---	---	---	---	---	---	---
	Skilling	---	---	---	---	---	---	---	---	---
Wed	Theory	---	---	---	---	--	--	---	---	---
	Tutorial	---	---	---	---	--	--	---	---	---
	Lab	---	---	---	---	--	--	---	---	---
	Skilling	---	---	---	---	V-S31,V-S31,V-S32,V-S32	V-S31,V-S31,V-S32,V-S32	---	---	---
Thu	Theory	---	---	--	--	---	---	---	---	---
	Tutorial	---	---	--	--	---	---	---	---	---
	Lab	---	---	--	--	---	---	---	---	---
	Skilling	---	---	V-S31,V-S31,V-S32,V-S32	V-S31,V-S31,V-S32,V-S32	---	---	---	---	---
Fri	Theory	--	--	--	--	--	--	--	--	--
	Tutorial	--	--	--	--	--	--	--	--	--
	Lab	--	--	--	--	--	--	--	--	--
	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

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 %	Skill Sem-End Exam	Weightage	10		100					10
		Max Marks	50							50
	End Semester Exam	Weightage	20		180	5	5	5	5	
		Max Marks	100			25	25	25	25	
	Lab End Semester Exam	Weightage	10		100					10
		Max Marks	50							50
In Semester Formative Evaluation Total= 24 %	MOOCs Review	Weightage	4		50	1	1	1	1	
		Max Marks	40			10	10	10	10	
	Skilling Continuous Evaluation	Weightage	5		50					5
		Max Marks	10							10
	ALM	Weightage	5		50	1.25	1.25	1.25	1.25	
		Max Marks	40			10	10	10	10	
	Home Assignment and Textbook	Weightage	5		50	1.25	1.25	1.25	1.25	
		Max Marks	40			10	10	10	10	
	Continuous Evaluation - Lab Exercise	Weightage	5		50					5
		Max Marks	10							10
In Semester Summative Evaluation Total= 36 %	Semester in Exam-I	Weightage	12		90	6	6			
		Max Marks	50			25	25			
	Semester in Exam-II	Weightage	12		90			6	6	
		Max Marks	50					25	25	
	Lab In Semester Exam	Weightage	6		50					6
		Max Marks	50							50
	Skill In-Sem Exam	Weightage	6		50					6
		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:
Anjana Akurathi	L	32-MA	-	-	-	-
Anjana Akurathi	P	32-A	-	-	-	-
Anjana Akurathi	S	32-A	-	-	-	-
CH Sabitha	P	31-C	-	-	-	-
sambasivarao lankoji	L	31-MA	-	-	-	-
sambasivarao lankoji	P	31-B	-	-	-	-
sambasivarao lankoji	S	31-A	-	-	-	-
Thella Priyanka	S	31-B	-	-	-	-
komali Govindu	P	31-A	-	-	-	-
komali Govindu	S	32-B	-	-	-	-
Mohd Khan	P	32-B	-	-	-	-
Kedar Ragam	P	32-C	-	-	-	-

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

(Anjana Devi Akurathi)

Signature of Department Prof. Incharge Academics & Vetting Team Member

Department Of CSE-Honors

HEAD OF DEPARTMENT:

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