K L Deemed to be University
Department of Artificial Intelligence and Data Science -- KLVZA
Course Handout
2024-2025, Even Sem

Course Title	:CONTINUOUS DELIVERY & DEVOPS
Course Code	:22SMD3303A
L-T-P-S Structure	: 3-0-4-4
Pre-requisite	:
Credits	: 6
Course Coordinator	:komali Govindu
Team of Instructors	:
Teaching Associates	:

Syllabus : Introduction to devops, overview of devops, devops life cycle. Difference and comparison between traditional models and continuous delivery and devops Relationship between agile and devops, Principles of devops, devops tools, best practices for devops. Version control systems: the role of version control systems in th DevOps environment and GitHub. Deploy the files to Bitbucket via Git and Ubuntu. Need of cloud in devops: popular cloud providers, relation between cloud and devops. Introduction to CI/CD, CI/CD in AWS and Azure, CI/cd services in AWS. Continuous integration and continuous deployment using Jenkins, continuous integration with Jenkins, Git. Build applications using pipelines on the Azure platform. Introduction to Testing and Types of Testing Software and automation testing frameworks: popular testing tools, test-driven development, behavior-driven development, automated testing using Cucumber, JUnit framework Introduction to containerization in devops, Docker as containerization: virtualization, Docker on Windows desktop, creating an account in Docker Hub. introduction to Kubernetes, MySQL in Docker Kubernetes, Kubernetes components, Kubernetes architecture, Minikube, pod configuration on Windows. Introduction to configuration manageme tools: configuration management—Chef, Puppet. Continuous monitoring: role of monitoring systems, types of monitoring. popular monitoring tools: Nagios,. orchestrating application deployment. AWS Elastic Container Service configuring a virtual machine in Amazon EC2 & Microsoft Azure. Configuration management using Chef and Puppet, Zenos monitoring tools, Splunk, and AWS Elastic Container Service Linux and Bash scripting GitLab for Continuous Integration configuring a virtual machine in Amazon EC2 & Microsoft Azure using Terraform

Text Books :1. Beginning DevOps with Docker – Joseph Muli, PACKT Publishing 2018 2. Azure DevOps: Complete CI/CD Pipeline Practical Guide, 2019, Mukesh Kumar 3. Richard Bullington-McGuire, Andrew K. Dennis, Michael Schwartz - Docker for Developers: Develop and run your application with Docker containers usir DevOps tools for continuous delivery (2020, Packt Publishing). 4. DevOps With Kubernetes - Hideto Saito, Hui-Chuan Chloe Lee, Cheng-Yang, PACKT Publishing, 2019. 5. Peter De Tender - Migrating a Two-Tier Application to Azure: A Hands-on Walkthrough of Azure Infrastructure, Platform, and Container Services (2021, Apress) 6. Murat Karslioglu - Kubernetes - A Complete DevOps Cookbook: Build and manage your applications, orchestrate containers, and deploy cloud-native services (2020, Packt Publishing)

Reference Books :1.Enterprise DevOps on Amazon Web Services: Releasing Software to Production at Any Time with AWS 1st Edition. Addison Wesley; 1st edition 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 tool 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. 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 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 5. https://www.coursera.org/programs/cse-faculty-courses-an6zm/projects/continuous-deliver release-pipelines-azure-devops 6.https://www.coursera.org/learn/ibm-containers-docker-kubernetes-openshift

Course Rationale : Course rationale to include the following aspects: The Continuous Delivery and DevOps course is designed to provide students with a comprehensive understanding of the principles, practices, and tools involved in modern software development and deployment. The rationale for offering this course is rooted in the increasing demand for agile and efficient software development methodologies in the industry. The software industry is constantly evolving, with organizations seeking faster and more reliable ways to deliver software products to market. Continuous Delivery and DevOps have emerged as key methodologies to address these demands. By equipping students with knowledge and skills in these areas, the course aims to meet the industry demand for professionals well-versed in these modern practices.Continuous Delivery and DevOps foster a culture of collaboration and integration among development, operations, and quality assurance teams.The course rationale recognizes the importance of teaching students how to break down silos and create cross-functional teams that work together to streamline the software development and deployment lifecycle. By doing so, students will gain an understanding of how to achieve faster time-to-market and improve software quality through automation and collaboration. The course rationale also acknowledges the significance of continuous improvement in software development. Continuous Delivery and DevOps emphasize the iterative nature of software development, where feedback loops and continuous integration are critical for driving continuous improvement. Continuous Delivery and DevOps heavily rely on automation and tooling to streamline the software delivery process. The course rationale recognizes the need for students to gain hands-on experience with industry-standard tools such as Jenkins, Docker, Kubernetes, and configuration management tools. B familiarizing students with these tools and teaching them how to integrate them into the development pipeline, the course aims to equip students with practical skills th are highly sought after in the job market.

Course Objectives :course objective of a Continuous Delivery (CD) and DevOps course is to equip participants with the knowledge, tools, and best practices necessar to implement and manage Continuous Delivery pipelines and DevOps culture effectively within an organization. By the end of the course, participants will be able to understand, design, and execute automated deployment workflows that ensure faster, more reliable, and scalable software delivery, while fostering a collaborative and agile environment.

COURSE OUTCOMES (COs):

CO NO	Course Outcome (CO)	PO/PSO	Blooms Taxonomy Level (BTL)
CO1	Infer the need for DevOps and a version control system to track the latest version of code.	PO1,PO3,PSO1	2
CO2	Apply continuous integration and continuous deployment using infrastructure as code using a pipeline.	PO1,PO5,PSO1	3
CO3	Apply Containerization in DevOps and Implement Kubernetes Pod Configuration.	PO1,PO5,PSO1	3
CO4	Inspect the continuous monitoring and container orchestration process.	PO2,PSO1,PO1	4
CO5	Analyze managing services and applications in a swarm	PO1,PO2	4

CO6	Inspect and deploy an application associated with various tools in DevOps.	PO2,PO5,PO1,PO5	4
CO7	Analyze continuous improvement with a DevOps culture.	PO1,PO2,PO5	4

COURSE OUTCOME INDICATORS (COIs)::

Outcome No.	Highest BTL	COI-2	COI-3	COI-4
CO1	2	**Btl-2** Classify the need for a version control system and cloud in DevOps.		
CO2	3	**Btl-2** Outline CI/CD and the Need for Automation Testing for Software Development	**Btl-3** Make use of Jenkins and Azure for CI/CD; identify the need for automation testing frameworks.	
CO3	3	**Btl-2** Build a docker image from a docker file and manage containers.	**Btl-3** Inspect the working behavior of Docker, Kubernetes, and Chef tools.	
CO4	4	**Btl-2** Build Configuration Management Tools	**Btl-3** Compare and Contrast Configuration Management Tools	**Btl-4** Analyze Nagios and Inspect Orchestration Process
CO5	4	**Btl-2** Build application deployment in AWS	**Btl-3** Inspect Azure, and Docker Swarm.	**Btl-4** Illustrate application deployment in AWS, Azure, and Docker Swarm.
CO6	4			**Btl-4** Build an application using continuous integration and continuous deployment tools.
CO7	4			**Btl-4** Analyze various tools to automate building, testing, and deploying an application.

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
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
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.
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.
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.
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
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
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.
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
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.
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.

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 Artificial Intelligence technology into innovative products for solving real world problems
PSO1	An ability to design and develop Artificial Intelligence technology into innovative products for solving real world problems.
PSO2	An ability to design and develop Data Science methods for analyzing massive datasets to extract insights by applying AI as a tool.
PSO2	An ability to design and develop Data Science methods for analyzing massive datasets to extract insights by applying AI as a tool

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, DevOps life cycle.	TBOOK[1], CH1. Páginas 8-13	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM1
2	CO1	COI-2	Difference and comparison between traditional models and continuous delivery and DevOps	web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM1
3	CO1	COI-2	Relationship between agile and devops,	web reference	PPT,Talk	ALM,End Semester Exam,SEM-EXAM1
4	CO1	COI-2	Principles of DevOps, DevOps tools, best practices for DevOps	web reference	PPT,Talk	ALM,End Semester Exam,SEM-EXAM1
5	CO1	COI-2	Version control systems: the role of version control systems in the DevOps environment and GitHub.	web reference	PPT,Talk	ALM,End Semester Exam,SEM-EXAM1
6	CO1	COI-2	Deploy the files to Bitbucket via Git and Ubuntu.	web reference	PPT,Talk	ALM,End Semester Exam,SEM-EXAM1
7	CO2	COI-2	Need of cloud in DevOps: popular cloud providers, relation between cloud and DevOps.	web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM1
8	CO2	COI-2	Introduction to CI/CD, ci/cd services with Jenkins	web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM1
9	CO2	COI-2	Continuous integration and continuous deployment using Jenkins, continuous integration with Jenkins, Git.	web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM1
10	CO2	COI-3	Build applications using pipelines on the Azure platform.	web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM1
11	CO2	COI-3	Introduction to Testing and Types of Testing Software and automation testing frameworks: popular testing tools, test-driven development, behavior-driven development	web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM1
12	CO2	COI-3	automated testing using Cucumber and the JUnit framework	web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM1
13	CO3	COI-2	Introduction to containerization in DevOps: Docker as containerization	web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM2
14	CO3	COI-3	virtualization, Docker on Windows desktop, creating an account in Docker Hub.	web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM2
15	CO3	COI-3	introduction to Kubernetes, MySQL in Docker Kubernetes	web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM2
16	CO3	COI-3	Kubernetes: components, Kubernetes architecture, Minikube, pod configuration on Windows.	web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM2
17	CO3	COI-3	Introduction to configuration management tools	web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM2
18	CO3	COI-3	configuration management tools, configuration management —Chef, Puppet.	web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM2
19	CO4	COI-3	Continuous monitoring: role of monitoring systems, types of monitoring.	web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM2
20	CO4	COI-3	popular monitoring tools: Nagios,. orchestrating application deployment.	web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM2
21	CO4	COI-4	AWS Elastic Container Service	web services	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM2
22	CO4	COI-4	configuring a virtual machine in Amazon EC2 & Microsoft Azure.	web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM2

Sess.No.	CO	COI	Topic	Book No[CH No][Page No]	Teaching-Learning Methods	EvaluationComponents
23	CO4	COI-4	Configuration management using Chef and Puppet, Zenos monitoring tools, Splunk, and AWS Elastic Container Service	web reference	PPT,Talk	ALM,End Semester Exam,Home Assignment,SEM-EXAM2
25	CO5	COI-4	Linux and Bash scripting	web reference	PPT,Talk	ALM,End Semester Exam,SQ
26	CO5	COI-4	GitLab for Continuous Integration	web reference	PPT,Talk	ALM,End Semester Exam,SQ
27	CO5	COI-4	configuring a virtual machine in Amazon EC2 & Microsoft Azure using Terraform	web reference	PPT	ALM,End Semester Exam,SQ
29	CO5	COI-4	configuring a virtual machine in Amazon EC2	web reference	LTC,PPT	ALM,End Semester Exam,SQ

Lecture Session wise Teaching – Learning Plan

SESSION NUMBER : 1

Session Outcome: 1 Introduction to DevOps, overview of DevOps, DevOps life cycle

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	1	Talk	--- NOT APPLICABLE ---
20	Introduction to DevOps,	2	PPT	Fish Bowl
20	overview of DevOps, DevOps life cycle	2	PPT	--- NOT APPLICABLE ---
5	overview	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 2

Session Outcome: 1 Difference and comparison between traditional models and continuous delivery and DevOps

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	1	Talk	--- NOT APPLICABLE ---
40	Difference and comparison between traditional models and continuous delivery and DevOps	2	PPT	Fish Bowl
5	summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 3

Session Outcome: 1 Relationship between agile and devops,

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	1	Talk	--- NOT APPLICABLE ---
40	Relationship between agile and devops,	2	PPT	--- NOT APPLICABLE ---
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 4

Session Outcome: 1 Principles of devops, devops tools, best practices for devops

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	1	Talk	--- NOT APPLICABLE ---
40	Principles of devops, devops tools, best practices for devops	2	PPT	--- NOT APPLICABLE ---
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 5

Session Outcome: 1 Version control systems: role of version control system in devops environment, github.

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

5	attendance	1	Talk	--- NOT APPLICABLE ---
40	Version control systems: role of version control system in devops environment, github.	2	PPT	--- NOT APPLICABLE ---
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 6

Session Outcome: 1 Deploy the files to bitbucket via git, and ubuntu.

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	1	Talk	--- NOT APPLICABLE ---
40	Deploy the files to bitbucket via git, and ubuntu.	2	PPT	--- NOT APPLICABLE ---
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 7

Session Outcome: 2 Need of cloud in devops: popular cloud providers, relation between cloud and devops.

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, relation between cloud and devops.	2	PPT	Group Discussion
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 8

Session Outcome: 2 Introduction to CI/CD, ci/cd services with Jenkins

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	1	Talk	--- NOT APPLICABLE ---
40	Introduction to CI/CD, ci/cd services with Jenkins	2	PPT	Group Discussion
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 9

Session Outcome: 2 Continuous integration and continuous deployment using jenkins, continuous integration with jenkins, git.

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	1	Talk	--- NOT APPLICABLE ---
40	Continuous integration and continuous deployment using jenkins, continuous integration with jenkins, git.	2	PPT	--- NOT APPLICABLE ---
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 10

Session Outcome: 2 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.	3	PPT	--- NOT APPLICABLE ---
5	summary	3	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 11

Session Outcome: 2 Introduction to Testing and Types of Testing Software and automation testing frameworks: popular testing tools, test-driven development, behavior-driven development

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	1	Talk	--- NOT APPLICABLE ---
40	Introduction to Testing and Types of Testing Software and automation testing frameworks: popular testing tools, test-driven development, behavior-driven development	3	PPT	--- NOT APPLICABLE ---

5	summary	3	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 12

Session Outcome: 2 automated testing using Cucumber and the JUnit framework

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	1	Talk	--- NOT APPLICABLE ---
40	automated testing using Cucumber and the JUnit framework	3	PPT	--- NOT APPLICABLE ---
5	summary	3	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 13

Session Outcome: 3 Introduction to containerization in DevOps: Docker as containerization

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	1	Talk	--- NOT APPLICABLE ---
40	Introduction to containerization in DevOps: Docker as containerization	2	PPT	One minute paper
5	summary	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 14

Session Outcome: 3 virtualization, Docker on Windows desktop, creating an account in Docker Hub.

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	1	Talk	--- NOT APPLICABLE ---
40	virtualization, Docker on Windows desktop, creating an account in Docker Hub.	3	PPT	One minute paper
5	summary	3	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 15

Session Outcome: 3 introduction to Kubernetes, MySQL in Docker Kubernetes

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	1	Talk	--- NOT APPLICABLE ---
40	introduction to Kubernetes, MySQL in Docker Kubernetes	3	PPT	--- NOT APPLICABLE ---
5	summary	3	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 16

Session Outcome: 3 Kubernetes: components, Kubernetes architecture, Minikube, pod configuration on Windows.

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	2	Talk	--- NOT APPLICABLE ---
40	Kubernetes: components, Kubernetes architecture, Minikube, pod configuration on Windows.	3	PPT	--- NOT APPLICABLE ---
5	summary	3	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 17

Session Outcome: 3 Introduction to configuration management tools,

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	1	Talk	--- NOT APPLICABLE ---
40	Introduction to configuration management tools,	3	PPT	--- NOT APPLICABLE ---
5	summary	3	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 18

Session Outcome: 3 configuration management tools, configuration management—Chef, Puppet.

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	1	Talk	--- NOT APPLICABLE ---
40	configuration management tools, configuration management—Chef, Puppet.	3	PPT	--- NOT APPLICABLE ---
5	summary	3	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 19

Session Outcome: 4 Continuous monitoring: role of monitoring systems, types of monitoring.

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	1	Talk	--- NOT APPLICABLE ---
40	Continuous monitoring: role of monitoring systems, types of monitoring.	3	PPT	One-Minute Paper
5	summary	3	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 20

Session Outcome: 4 popular monitoring tools: nagios,. orchestrating application deployment.

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	1	Talk	--- NOT APPLICABLE ---
40	popular monitoring tools: nagios,. orchestrating application deployment.	3	PPT	One minute paper
5	summary	3	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 21

Session Outcome: 4 AWS Elastic Container Service

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	2	Talk	--- NOT APPLICABLE ---
40	AWS Elastic Container Service	4	PPT	--- NOT APPLICABLE ---
5	summary	4	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 22

Session Outcome: 4 configuring a virtual machine in Amazon EC2 & Microsoft Azure.

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	2	Talk	--- NOT APPLICABLE ---
40	configuring a virtual machine in Amazon EC2 & Microsoft Azure.	4	PPT	--- NOT APPLICABLE ---
5	summary	4	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 23

Session Outcome: 4 Configuration management using chef and puppet ,zenos monitoring tools, splunk, aws elastic container service"

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	1	Talk	--- NOT APPLICABLE ---
40	Configuration management using chef and puppet ,zenos monitoring tools, splunk, aws elastic container service"	4	PPT	--- NOT APPLICABLE ---
5	summary	4	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 25

Session Outcome: 5 Linux and Bash scripting

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
10	attendance	1	Talk	--- NOT APPLICABLE ---
40	Linux and Bash scripting	4	PPT	One minute paper

SESSION NUMBER : 26

Session Outcome: 5 GitLab for Continuous Integration

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	GitLab for Continuous Integration	4	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 27

Session Outcome: 5 configuring a virtual machine in Amazon EC2 & Microsoft Azure using Terraform

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	configuring a virtual machine in Amazon EC2 & Microsoft Azure using Terraform	4	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 29

Session Outcome: 5 configuring a virtual machine in Amazon EC2

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
5	attendance	4	PPT	--- NOT APPLICABLE ---
40	configuring a virtual machine in Amazon EC2	4	LTC	--- NOT APPLICABLE ---
5	summary	4	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 a file from Github via Git Bash.	CO6
2	Deploy to GitHub via Git in Ubuntu	CO6
3	Install and configure Jenkins for continuous integration.	CO6
4	Continuous Integration for Email using Jenkins plugins	CO6
5	Build Python Application From The Azure Platform	CO6
6	Creating and Configuring a Build Job for a Java Application for CI/CD Pipeline.	CO6
7	Test Driven Development with JUnit 5	CO6
8	Automated Testing Using Cucumber	CO6
9	Configure Amazon EC2 instances using the AWS console.	CO6
10	Creating An Account In Docker Hub and Docker Toolbox Installation	CO6
11	Working with prebuilt Docker images.	CO6
12	Implement MySQL in Docker	CO6
13	Create and deploy a web application using Docker.	CO6
14	Implement Kubernetes on Windows Using Minikube	CO6
15	Implement Working With Nagios Monitoring Tool	CO6

Practical Session wise Teaching – Learning Plan

SESSION NUMBER : 1

Session Outcome: 6 Deploy a file from Github via Git bash.

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Deploy a file from Github via Git bash.	4	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 2

Session Outcome: 6 Deploy to GitHub via Git in Ubuntu

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Deploy to GitHub via Git in Ubuntu	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 3

Session Outcome: 6 Install and Configure Jenkins for continuous integration.

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Install and Configure Jenkins for continuous integration.	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 4

Session Outcome: 6 Continuous Integration for Email using Jenkins plugins

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Continuous Integration for Email using Jenkins plugins	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 5

Session Outcome: 6 Build Python Application From The Azure Platform

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Build Python Application From The Azure Platform	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 6

Session Outcome: 6 Creating and Configuring a build job for a Java Application for ci/cd pipeline.

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Creating and Configuring a build job for a Java Application for ci/cd pipeline.	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 7

Session Outcome: 6 Test Driven Development with JUnit 5

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Test Driven Development with JUnit 5	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 8

Session Outcome: 6 Automated Testing Using Cucumber

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Automated Testing Using Cucumber	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 9

Session Outcome: 6 Configure Amazon Ec2 instances using aws console

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Configure Amazon Ec2 instances using aws console	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 10

Session Outcome: 6 Creating An Account In Docker Hub and Docker Toolbox Installation

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

50	Creating An Account In Docker Hub and Docker Toolbox Installation	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 11

Session Outcome: 6 Working with prebuild Docker Images.

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Working with prebuild Docker Images.	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 12

Session Outcome: 6 Implement Mysql In Docker-

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Implement Mysql In Docker-	4	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 13

Session Outcome: 6 Create and deploy web application using Docker-

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Create and deploy web application using Docker-	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 14

Session Outcome: 6 Implement Kubernetes on Windows Using Minikube

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Implement Kubernetes on Windows Using Minikube	4	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 15

Session Outcome: 6 Implement Working With Nagios Monitoring Tool

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Implement Working With Nagios Monitoring Tool	4	LTC	--- NOT APPLICABLE ---

Skilling Course DELIVERY Plan:

Skilling session no	Topics/Experiments	CO-Mapping
1	Write a procedure to deploy files in GitHub via Bitbucket.	CO7
2	Deploy the files to Bitbucket via cmd.	CO7
3	Install and Configure Set up Jenkins and understand its basic functionality.	CO7
4	Install Jenkins on a local or cloud server. Configure initial settings and create the first user. Explore the Jenkins dashboard.	CO7
5	Continuous Integration with Jenkins: Develop a test mail configuration	CO7
6	Use BDD to define and test the deployment process of a web application on Kubernetes.	CO7
7	infrastructure as code (IaC) tests for provisioning a virtual machine using Terraform.	CO7
8	Implement CI/CD to Deploy a Java Web App to Azure App Service	CO7
9	Implement the Build Pipeline Plugin in Jenkins.	CO7
10	Implement Docker file creation & Docker networking.	CO7
11	Set up a continuous monitoring system for a web application.	CO7
12	List the commands to add a Linux Node to the Kubernetes Cluster.	CO7
13	Creating and Configuring a Virtual Machine in Amazon EC2.	CO7

Skilling session no	Topics/Experiments	CO-Mapping
14	Implement Continuous Monitoring with the ELK Tool in Ubuntu	CO7
15	Implement Continuous Monitoring with the Grafana Tool in Ubuntu	CO7

Skilling Session wise Teaching – Learning Plan

SESSION NUMBER : 1

Session Outcome: 7 Write a procedure to deploy files in Github via Bitbucket

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Write a procedure to deploy files in Github via Bitbucket	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 2

Session Outcome: 7 Deploy the files to Bitbucket via cmd

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Deploy the files to Bitbucket via cmdv	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 3

Session Outcome: 7 Install and Configure Set up Jenkins and understand its basic functionality.

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Install and Configure Set up Jenkins and understand its basic functionality.	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 4

Session Outcome: 7 Install Jenkins on a local or cloud server. Configure initial settings and create the first user. Explore the Jenkins dashboard.

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Install Jenkins on a local or cloud server. Configure initial settings and create the first user. Explore the Jenkins dashboard.	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 5

Session Outcome: 7 Continuous Integration with Jenkins, develop a test mail configuration

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Continuous Integration with Jenkins, develop a test mail configuration	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 6

Session Outcome: 7 Use BDD to define and test the deployment process of a web application on Kubernetes.

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Use BDD to define and test the deployment process of a web application on Kubernetes.	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 7

Session Outcome: 7 infrastructure as code (IaC) tests for provisioning a virtual machine using terraform.

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	infrastructure as code (IaC) tests for provisioning a virtual machine using terraform.	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 8

Session Outcome: 7 Implement CI/CD To Deploy A Java Web App To Azure App Service

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Implement CI/CD To Deploy A Java Web App To Azure App Service	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 9

Session Outcome: 7 Implement Build Pipeline Plugin in jenkin

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Implement Build Pipeline Plugin in jenkin	5	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 10

Session Outcome: 7 Implement docker file creation & docker networking

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Implement docker file creation & docker networking	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 11

Session Outcome: 7 Set up a continuous monitoring system for a web application

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Set up a continuous monitoring system for a web application	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 12

Session Outcome: 7 List the commands to add a Linux Node to the Kubernetes Cluster

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	List the commands to add a Linux Node to the Kubernetes Cluster	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 13

Session Outcome: 7 Creating and Configuring a virtual machine in Amazon EC2 .

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Creating and Configuring a virtual machine in Amazon EC2 .	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 14

Session Outcome: 7 Implement Continuous Monitoring with ELK Tool in Ubuntu

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Implement Continuous Monitoring with ELK Tool in Ubuntu	4	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 15

Session Outcome: 7 Implement Continuous Monitoring with Grafana Tool in Ubuntu

Time(min)	Topic	BTL	Teaching- Learning Methods	Active Learning Methods
50	Implement Continuous Monitoring with Grafana Tool in Ubuntu	4	LTC	--- NOT APPLICABLE ---

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

Week	Assignment Type	Assignment No	Topic	Details	co
1	Weekly Homework Assignments	1	devops life cylcle	explain in detail about stepts in devops life cycle	CO1
7	Weekly Homework Assignments	2	jenkins	explain about continuous integration	CO2
13	Weekly Homework Assignments	3	docker	create a docker image and run it in a container	CO3
19	Weekly Homework Assignments	4	kuberneties	create a pod in kuberneties by minikube	CO4

COURSE TIME TABLE:

	Hour	1	2	3	4	5	6	7	8	9
Day	Component									
Mon	Theory	--	--	--	--	--	--	--	--	--

	Tutorial	--	--	--	--	--	--	--	--	--	
	Lab	--	--	--	--	--	--	--	--	--	
	Skilling	--	--	--	--	--	--	--	--	--	
Tue	Theory	--	--	--	--	--	--	--	--	--	
	Tutorial	--	--	--	--	--	--	--	--	--	
	Lab	--	--	--	--	--	--	--	--	--	
	Skilling	--	--	--	--	--	--	--	--	--	
Wed	Theory	--	--	V-S11,V-S12	V-S11,V-S12	---	---	--	--	--	
	Tutorial	--	--	--	--	---	---	--	--	--	
	Lab	--	--	V-S17,V-S17,V-S17	V-S17,V-S17,V-S17	---	---	--	--	--	
	Skilling	--	--	V-S13,V-S13,V-S14,V-S14,V-S15,V-S15,V-S16,V-S16	V-S13,V-S13,V-S14,V-S14,V-S15,V-S15,V-S16,V-S16	---	---	--	--	--	
Thu	Theory	--	--	---	---	V-S13,V-S14	V-S13,V-S14	--	--	--	
	Tutorial	--	--	---	---	--	--	--	--	--	
	Lab	--	--	---	---	V-S15,V-S15,V-S15	V-S15,V-S15,V-S15	--	--	--	
	Skilling	--	--	---	---	V-S11,V-S11,V-S12,V-S12,V-S16,V-S16,V-S17,V-S17	V-S11,V-S11,V-S12,V-S12,V-S16,V-S16,V-S17,V-S17	--	--	--	
Fri	Theory	--	--	V-S15,V-S16	V-S15,V-S16	---	---	--	--	--	
	Tutorial	--	--	--	--	---	---	--	--	--	
	Lab	--	--	V-S12,V-S13,V-S13,V-S13,V-S14,V-S14,V-S14	V-S12,V-S13,V-S13,V-S13,V-S14,V-S14,V-S14	---	---	--	--	--	
	Skilling	--	--	V-S11,V-S11,V-S12,V-S12,V-S17,V-S17	V-S11,V-S11,V-S12,V-S12,V-S17,V-S17	---	---	--	--	--	
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	CO6	CO7
End Semester Summative Evaluation Total= 40 %	**Skill Sem-End Exam**	Weightage	8		120							8
		Max Marks	100									100
	Lab End Semester Exam	Weightage	8		120						8	
		Max Marks	100								100	
	End Semester Exam	Weightage	24		120	4.8	4.8	4.8	4.8	4.8		
		Max Marks	100			20	20	20	20	20		
In Semester Formative Evaluation Total= 24 %	**Skilling Continuous Evaluation**	Weightage	5		120							5
		Max Marks	100									100
	Continuous Evaluation - Lab Exercise	Weightage	5		120						5	
		Max Marks	100								100	
	Home Assignment and Textbook	Weightage	7		120	1.75	1.75	1.75	1.75			
		Max Marks	40			10	10	10	10			
	ALM	Weightage	7		120	1.4	1.4	1.4	1.4	1.4		

		Max Marks	50			10	10	10	10	10		
In Semester Summative Evaluation Total= 36 %	**Skill In-Sem Exam**	Weightage	6		120							6
		Max Marks	50									50
	Lab In Semester Exam	Weightage	6		120						6	
		Max Marks	50								50	
	Semester in Exam-II	Weightage	9		90			4.5	4.5			
		Max Marks	50					25	25			
	Surpize Quiz	Weightage	6		120					6		
		Max Marks	50							50		
	Semester in Exam-I	Weightage	9		90	4.5	4.5					
		Max Marks	50			25	25					

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:
Prasanth Yalla	P	14-C	-	-	-	-
Sabbineni Rao	P	14-B	-	-	-	-
Chaitanya Krishna Bondalapu	L	12-MA	-	-	-	-
Chaitanya Krishna Bondalapu	P	12-A	-	-	-	-
Chaitanya Krishna Bondalapu	S	12-A	-	-	-	-
Nagamalleswari Dubba	S	17-B,15-B	-	-	-	-
Abdul A	P	16-B	-	-	-	-
Abdul A	S	13-B	-	-	-	-
Murali Vutukuru	P	13-B	-	-	-	-
CH Sabitha	P	15-B	-	-	-	-
Bindu G	P	12-B,17-C	-	-	-	-
Mohammad Ishrat	P	16-C,17-B,15-C	-	-	-	-
Arpit Jain	S	16-B	-	-	-	-
Anita Pradhan	S	12-B	-	-	-	-
sambasivarao lankoji	L	14-MA	-	-	-	-
sambasivarao lankoji	P	14-A	-	-	-	-
sambasivarao lankoji	S	14-A	-	-	-	-
SWARNA MAHESH NAIDU	S	13-B	-	-	-	-
Jagan Sarihaddu	L	13-MA	-	-	-	-
Jagan Sarihaddu	P	13-A	-	-	-	-
Jagan Sarihaddu	S	13-A	-	-	-	-
Thella Priyanka	S	17-B	-	-	-	-
komali Govindu	L	11-MA	-	-	-	-
komali Govindu	P	11-A	-	-	-	-
komali Govindu	S	11-A	-	-	-	-
PURNA KASARANENI	P	11-B	-	-	-	-
RAVISANKAR MALLADI	S	14-B	-	-	-	-
BANDLA NIROSHA	L	16-MA	-	-	-	-
BANDLA NIROSHA	P	16-A	-	-	-	-
BANDLA NIROSHA	S	16-A	-	-	-	-
Sathviki Rompicherla	P	12-C	-	-	-	-
Talluri Jyothi	L	17-MA	-	-	-	-
Talluri Jyothi	P	17-A	-	-	-	-

Talluri Jyothi	S	17-A	-	-	-	-
Kanaparti Raju	S	12-B	-	-	-	-
swathi buradagunta	L	15-MA	-	-	-	-
swathi buradagunta	P	15-A	-	-	-	-
swathi buradagunta	S	15-A	-	-	-	-
SATEESH G	P	11-C	-	-	-	-
SATEESH G	S	14-B,11-B	-	-	-	-
JAVVAJI VENKATARAO	P	13-C	-	-	-	-
KARI SUMANTH	S	16-B	-	-	-	-
MALLIKARJUNAMALLUK	P	12-C	-	-	-	-
MALLIKARJUNAMALLUK	S	15-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

(komali Govindu)

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]