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| **DEVOPS**  **Subject Code: Total Hours: 45**  **Credits: 03 L-T-P: 3-0-0**  **Prerequisite:** Shell Scripting, Cloud Computing, Software Engineering  **Course Objectives:**   * The background and mindset of DevOps * The practices of version control and configuration management that support DevOps * How test automation supports DevOps * The essentials of continuous integration (CI) * The principles and practices of continuous delivery (CD) * The deployment pipeline and its purpose.   **Unit-I: (9 Hours)**  **Introduction to DevOps**  What Is DevOps, History of DevOps, DevOps definition, DevOps Main Objectives,  DevOps and Software Development Life Cycle (Waterfall Model & Agile Model),  Continuous Integration & Deployment (Jenkins),  Containers and Virtual Development (Docker, Vagrant),  Configuration Management Tools (Ansible, Puppet & Chef)  **Unit-II: (9 Hours)**  **Version Control-GIT**  GIT Features, 3-Tree Architecture, GIT – Clone /Commit / Push,  GIT Hub Projects, GIT Hub Management,  GIT Rebase & Merge, GIT Stash, Reset, Checkout, GIT Clone, Fetch, Pull    **Unit-III: (9 Hours)**  **Continuous Integration – Jenkins**  Introduction to Jenkins, Continuous Integration with Jenkins, Configure Jenkins,  Jenkins Management, Scheduling build Jobs (POLL SCM & Build Periodically),  Maven Build Scripts, Support for the GIT version control System,  Different types of Jenkins Jobs,  Jenkins Build Pipe Line (Parent and Child Builds & Sequential Builds),  Jenkins Master & Slave Node Configuration, Jenkins Workspace Management,  Securing Jenkins (Authentication, Authorization, Confidentiality & Creating Users),  Jenkins Plugins (Installing Jenkins Plugins, SCM plugin, Build and test)  **Unit IV: (9 Hours)**  **Build tool- Maven**  Maven Installation, Maven Build requirements, Maven POM Builds (pom.xml),  Maven Build Life Cycle, Maven Local Repository (.m2), Maven Global Repository,  Group ID, Artifact ID, Snapshot, Maven Dependencies, Maven Plugins  **Unit V: (9 Hours)**  **Docker**  How to get Docker Image? What is Docker Image, Docker Installation,  Working with Docker Containers, What is Container, Docker Engine,  Creating Containers with an Image, Working with Images,  Docker Command Line Interface, Docker Compose,  Docker Hub, Docker Trusted Registry,  Docker swarm, Docker attach, Docker File & Commands  **Course Outcomes:**  At the end of this course students able to,   * The background and mindset of DevOps * The practices of version control and configuration management that support DevOps * How test automation supports DevOps * The essentials of continuous integration (CI) * The principles and practices of continuous delivery (CD) * The deployment pipeline and its purpose. |