

Day - 1

- **GitLab Overview & Architecture**

- GitLab CE vs EE
- GitLab Components (Gitaly, PostgreSQL, Redis, Sidekiq, Workhorse)
- GitLab Architecture in self-managed and HA setups
- GitLab Workflow for Administrators

- **Installation & Upgrade**

- GitLab Omnibus installation (Ubuntu/CentOS)
- GitLab installation via Docker and Helm (Kubernetes)
- GitLab Upgrade Process (major/minor versions)
- Zero-downtime upgrade strategy

- **Initial Configuration & Setup**

- GitLab.rb overview and configuration
- Configuring external URL, ports, HTTPS (Let's Encrypt, custom certs)
- SMTP & email notification setup
- Timezone, locale, and application settings
- GitLab instance configuration via UI and CLI

- **Hands-on Labs**

- Installing GitLab via Omnibus
- Configuring GitLab.rb for HTTPS & SMTP
- First-time setup and admin dashboard

- **User & Group Management**

- User creation and profile management
- Group management and permissions
- Role-based access control
- Managing SSH Keys and Personal Access Tokens
- SAML, LDAP, and Single Sign-On (SSO) integration

- **GitLab Runner Administration**

- Overview of GitLab Runners (shared vs specific)
- Installing and registering runners (Linux, Docker, Kubernetes)
- Runner tags, locking, and concurrency
- Auto-scaling runners on Kubernetes or Docker Machine
- Security best practices for runners

- **Project & Repository Administration**

- Project visibility levels and forking settings
- Protected branches and tags
- Repository mirroring (push/pull)
- Enabling/disabling features (Wiki, Issues, Snippets)
- File storage management and LFS

- **Hands-on Labs**

- Registering a GitLab Runner
- Configuring project visibility and branch protections
- Integrating LDAP or SAML for authentication

- **CI/CD Administration**

- Understanding .gitlab-ci.yml from admin POV
- Managing pipeline concurrency, timeouts, and limits
- Creating and managing pipeline schedules
- Auto DevOps and templates for standardization
- Pipeline debugging and troubleshooting

- **Backup, Restore & Disaster Recovery**

- GitLab Backup strategies
- Full backup using GitLab rake
- Automating backup jobs
- Restore process from backup
- High Availability (HA) and Geo replication concepts

- **Logs, Monitoring & Troubleshooting**

- GitLab log structure and locations (/var/log/gitlab/*)
- Monitoring with Prometheus and Grafana
- GitLab performance tuning (unicorn/puma workers, sidekiq)
- Troubleshooting GitLab components
- Troubleshooting Runners and CI/CD jobs

- **GitLab Integration & Security Hardening**

- Integration with Jenkins, Jira, Slack, Mattermost
- Webhooks and API tokens
- GitLab Security Dashboard
- Enforcing 2FA
- Security scanning features in GitLab Ultimate

- **Hands-on Labs**

- Backup and Restore demo
- CI/CD configuration and troubleshooting
- Monitoring GitLab with Prometheus
- API and Webhook setup