DevOps Academy | www.Ops-Academy.io
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DevOps Course

DURATION

384 hours

OVERVIEW

DevOps is the union of people, processes and products, to enable the continuous delivery of value to end users. It aims to create a culture and environment where building, testing, and releasing software can happen rapidly, frequently, and more reliably, so you can innovate like a startup and scale for the enterprise. By taking this DevOps course, you'll be able to define DevOps, understand why you need DevOps, and learn how you can get started with DevOps. You'll learn the key ideas and techniques to bring development and operations together to produce high-quality software and deliver it faster.

TARGET AUDIENCE

This course targets system administrators, developers, and IT/Operations professionals who would like to learn and do DevOps in their current organizations or for future career opportunities.

Prerequisites:

- Basic knowledge of software and hardware including IT Networking fundamentals
- Familiarity with the command line and some knowledge of basic Linux commands. In addition, Familiarity with Bash Scripts or any other code language
- Desire to learn something new and continuous improvement
- Basic knowledge of Operating System and Networking

Note: You will be learning many tools from the ground up, so no additional knowledge

of the tools presented below is needed.

KEY FEATURES

- Get to grips on Git, Docker, Kubernetes
- Create and run Your Ansible Playbooks
- Build and design Dynamic Pipelines with Jenkins

APPROACH

This course contains examples and demonstrations and will walk you through everything you need to know step by step, including helpful tips along the way. At the end of the modules, there will be a Continuous Course Project to help reinforce the topics that you learned from the module.

WHAT WILL YOU LEARN

1. What is DevOps for Real
2. Deal and Solve with Open Source tools real world's company's Issues and Pains
3. How to choose the right tools and approach for you
4. Get best practice of the common tools and technologies in the DevOps World

ABOUT THE TEACHER

Lidor Gerstel is a DevOps Consultant & Experienced Trainer with a demonstrated history of educating professionals. Lidor combines practical experience from his CI/CD work with industry leaders so you can learn from his practical experience.

SUMMARY OF CONTENT

0	PREP FOR DEVOPS- LINUX & Networks & Virtualization	60 hours
1	Introduction to DevOps	3 hours
2	Basics of Git	6 hours
3	Basics & Advanced - Python , Bash , Scripts, GO	36 hours
4	Vagrant	6 hours
5	Docker	36 hours
6	Jenkins & Github Actions- CI and groovy Pipeline	50 hours
7	Nexus , Artifactory & SonarQube	6 hours
11	Kubernetes	60 hours
12	AWS	60 hours
8	Terraform & Terragrunt	18 hours
9	GITOPS- ARGOCD	6 hours
10	Ansible	12 hours
13	Logs and Monitoring Concepts	12 hours
14	Final Project	6 hours
15	Summary & Finalization	6 hours

COURSE ROADMAP

Part 1 - Introduction to Devops - 3 Hours
In this section, you will be walked through on what is DevOps, and why DevOps ,

where is it Useful

- DevOps Introduction
- What is DevOps?
- Why DevOps?
- Who uses DevOps – Where is it Useful?
- DevOps ToolChain
- DevOps in Business & Enterprises

Part 2 - Basics of Git -6 hours

In this section, you will be walked through on what is DevOps, and why DevOps , where is it Useful

- In this section, you will get to grips with what Command you can do in git and how to kick off your first Git Repo .
- Introduction to Source Control
- Introduction to Git
- Git Terminology & GitHub
- Install Git on Linux
- Install Git on Windows
- Git Configure
- Configure Git repo in GitHub
- Bitbucket -Introduction
- Gitlab - Introduction
- Git Commit
- Git logs and add files
- Understand git Flows

Part 3 - Basics of Python,Bash and Scripts - 36 hours

This section will develop our basic script with some Logic.

- Command Lines for beginners
- Shell Scripting
    a. Intro and Basics
    b. If statements
    c. For Loops
    d. While Loops
    e. Terminate a script
    f. Cases
    g. Exit status
    h. Functions
    i. Variables
- Python 3 :
    a. Introduction and Installation
    b. Basics of Python
    c. Operations , Data types & file and exception handling
    d. Functions , generators and REGEX in Python
- Go & GoLang

Part 4 - Vagrant - 6 Hours

This section will ensure that you understand the vagrant virtualization technology.

- Vagrant introduction and Benefits
- Terminologies and Working
- Installation and Configuration
- Vagrant in Action

Part 5 - Docker - 36 hours

This section will ensure that you understand the Containers World.

- What is Docker
- Installing Docker
- Working with Docker Images
- Create containerized web applications
    a. Building DockerFile
    b. Tagging Containers
    c. Push to Docker Registry
- Docker Networking
- Deploy Docker Containers in Production using Docker Compose

Part 6 - Jenkins, CI and Groovy Pipelines & Github Actions - 50 hours

This section will ensure that you understand how to Build CI Pipelines.

- What is Jenkins
- Install and Configure Apache Tomcat & Deploy Jenkins
- Install and Configure Apache Maven
- Configure Jenkins & Plugins
- Configure Agents in Jenkins (Slaves)
- Jenkins Distribution Builds
- Configure Environment variables in Jenkins and using Parameters
- Build Code , test Code and Review the steps in Job Console
- MultiJob Execution
- Build JenkinsFile & Run Jenkins Groovy Pipelines
- Execute Parallels Steps in Groovy Pipelines
- Invoking jobs as part of the Groovy Pipeline

- Utilize code snippet generator to build step in Pipelines
- Create a CI with Docker
- Provision Agents as Containers
- Deploy to Environments in Pipelines
- Github Actions

Part 7 - Nexus, Artifactory and SonarQube - 6 hours

This section will ensure that you understand where to store artifacts.

- What is an Artifact
- Private Docker Registry
- Install and Configure Jfrog Artifactory
- Install and Configure Nexus OSS
- Uploading Artifacts

Part 8 - Kubernetes - 60 hours

This section will ensure that you deploy Production-Grade applications on Kubernetes.

- Introduction to K8s (Kubernetes)
- Deploying K8s
- Minikube Setup
- First K8s Application
- Kubectl -basics
- Scale k8s nodes
- Labels and Selectors
- Health Checking
- Web Interface

- DNS and Service Discovery
- Volumes
- Secrets
- Usage and resource Monitoring
- Auto-Scalling
- Auditing
- K8s High availability
- K8s Masters
- Packaging and Deploying application with Helm
- Serverless on K8s
    - Introduction to kubeless
    - Creating Functions with Kubeless
- Microservices
    - Canary deployments
    - Blue Green deployments
    - Mutual TLS

Part 9 - AWS - 60 Hours

This section will ensure that you Become an AWS Cloud Guru.

- Introduction to AWS- Basics
- IAM
- AWS Object Storage and CDN – S3, Glacier and Cloudfront
- EC2
- Route53
- Databases on AWS
- VPC
- AWS BEANSTALK
- AWS CloudFormation Stack
- AWS Code-Deploy and Code-Pipeline
- AWS Elastic Kubernetes Services

Part 10 - Terraform & Terragrunt - 18 hours

This section will ensure that you understand Terraform and Terraform Code very well.

- Terraform – an introduction
- Infrastructure as code
- The difference of terraform
- Install Terraform on Linux
- Install Terraform on Windows
- Create First Terraform file
    a. Resources
    b. Providers
    c. Variables
- Output Attributes
- Interpolation Expressions
- Modules
- Workspaces
- Terragrunt usage

Part 11 - ARGOCD -6 hours

This section will ensure that you understand basic use of ArgoCD and run GITOPS Concepts

- Introduction to GitOPS
- What is ARGOCD - Setup
- How to deploy applications with ArgoCD

- Policies and phases
- CD FLOW

- Modules
- Parameters
- Templates
- Classes
- Deploy an Application

Part 12 - Ansible - 12 hours

This section will ensure that you will build ansible file with Hands on Exercises.

- Introduction to Ansible
- Ansible Inventory
- Introduction to YAML
- Ansible Playbooks
- Ansible Modules
- Ansible Variables
- Conditionals
- Loops
- Ansible Roles
- Troubleshooting , Testing and Validation

Part 13 - Logs and Concept Monitoring - 12 hours

This section will ensure that you will understand logs Concepts and Levels.

- Introduction to Application Logs

- Understand Monitoring Concepts (Nagios,Zabbix)
- Introduction to ELK (ElasticSearch, LogStash, Kibana)
- PROMETHEUS + Grafana
- APM (New Relic, Datadog, Dynatrace)

Part 14 - Final project - 6 hours

This section will conclude all of the materials and exercise to an ongoing Individual finalizing Project Paper.

Part 15 - summary -6 hours

This section will summarize all the course and will present questions to the students from real world job interview.