Introduction to DevOps

Nature of the course: Theory + Practical
Total hours per day: 2 hours
Course duration: 6 weeks

Course Summary

This course covers all the fundamentals about Docker software and teaches you everything you need to know about deploying modern applications with Docker software.

In the end of this course, you will gain in-depth knowledge about CI/CD and Infrastructure as a Code.

Completion Criteria

After fulfilling all of the following criteria, the student will be deemed to have finished the module:

1. Has attended 90% of all classes held
2. Has received an average grade of 80% on all assignments
3. Has received an average of 60% in assessments
4. The tutor believes the student has grasped all of the concepts and is ready to go on to the second module.

Required Textbooks

1. The DevOps Handbook
2. Effective DevOps
3. Continuous Delivery

Course Details

Week 1

DevOps

- Introduction to DevOps
- Aspects of DevOps
- Tools Used in DevOps

Linux

- Basic Commands
- Service management using system
- Web Hosting
- Scripting

Virtualization

- Introduction
- Setup Virtual Machines (Oracle Virtualbox)

Week 2

Git

- Introduction to Version Control
- Using Git Locally
- Working with Remotes

Vagrant

- Introduction
- Writing a Vagrantfile

Cloud & IaaS

- Introduction to IaaS
- Different IaaS vendors

Containers

- Introduction to Docker
- Docker Installation (Docker for windows, Docker-CE linux based servers)
- Docker Components
- Handling Docker Images
- Running Docker containers
- Writing Dockerfile

Week 3 and 4

CI/CD

- Introduction to CI/CD
- Different CI/CD Platforms and Tools
- Introduction to Github Actions
- Writing github actions workflow

Container Orchestration

- Introduction
- Docker compose
- Docker Swarm
- Introduction to Kubernetes

Week 5 and 6
Cloud Platform (AWS)

- What is IAM?
- Setting up EC2
- Introduction to load balancer and auto scaling group

Infrastructure as a Code

- Introduction
- Different tools in IaaC
- Introduction to Ansible
- Writing Ansible playbooks
- Writing inventory files
- Introduction to Terraform

Monitoring

- Introduction
- Tools used in Monitoring
- Prometheus vs Zabbix

Learning Outcomes

- Able to set up virtual machines
- Learn how to use Docker and containers
- Creating a pipeline for Continuous Integration and Continuous Deployment
- Basic Knowledge of Cloud Computing and its use
- General idea of Infrastructure as a Code