

# Sela.

kuber

## Kubernetes

college@sela.co.il

03-6176666





## Kubernetes

kuber - Version: 3

 2 days Course

### Description:

Everyone talks about Kubernetes lately, and they should. Kubernetes is now the market leader in container orchestration platforms, and has been adopted by all major cloud providers as a fully managed offering (GCP, AWS, Azure, Oracle Cloud), Kubernetes is being adopted in a growing rate for multiple use cases - as micro-services workloads, Big Data, and Machine Learning.

### Intended audience:

Senior developers, DevOps engineers and Cloud Architects, with good familiarity with Docker and Cloud concepts.

### Prerequisites:

Basic Docker familiarity  
Basic Linux command line familiarity

### Objectives:

The overall goal of the course is to get to know Kubernetes.  
This tool will teach you to synchronize the containers reliably and efficiently, so you will be able to automatically manage and deploy applications on containers that appear on the server

### Topics:



## Module 01 - Introduction

- Workshop Objectives
- Workshop Agenda
- Kubernetes Introduction

## Module 02 - Kubernetes Architecture

- Core Concepts
- High-Level components Architecture
- Master Components
- Worker Node Components
- Putting All Together
- Additional Services

## Module 03 - YAML and Kubctl

- YAML
- Kubectl
- Lab 01: Setting Up Your Workstation

## Module 04 - Kubernetes Basics

- Kubernetes Building Blocks
- Namespaces
- Pods
- Replication Sets
- Lab 02: Creating Our First Pod



## Module 05 - Deployments and Upgrades

- Deployments
- Rolling Upgrades
- Lab 03: Deploy and Upgrade a Single Service

## Module 06 - Labels and Annotations

- Labels
- Annotations
- Selectors

## Module 07 - Kubernetes Networking

- Kubernetes Networking Introduction
- Container Network Interface (CNI)
- CNI Plugins
- Fundamental Networking Rules
- Networking patterns

## Module 08 - Services

- Services Introduction
- Service Types – ClusterIP
- Service Types – NodePort
- Service Types – LoadBalancer
- Service Types – ExternalName
- Lab 04: Creating a Load Balancer Service

## Module 09 - Ingress



- Introduction to Ingress
- Ingress Controllers
- Lab 05: Deploying applications using Ingress

## Module 10 - ConfigMaps and Secrets

- ConfigMaps
- ConfigMaps – As Environment Variables
- ConfigMaps – As Volumes
- Secrets
- Lab 06: Using ConfigMaps and Secrets

## Module 11 - Jobs and CronJobs

- Jobs
- CronJobs
- Lab 07: Running Jobs and CronJobs

## Module 12 - Daemonsets

- DaemonSets
- Lab 08: Running Pods as DaemonSets

## Module 13 - Helm Package Manager

- What is Helm?
- Helm Concepts
- Helm Architecture
- Tiller
- Helm CLI



- Using Helm Charts
- Lab 09: Deploying Applications using Helm

## Module 14 - Managed Kubernetes

- Local Development Kubernetes
- Kubernetes on Google Cloud Platform (GKE)
- Kubernetes on Amazon Web Services (EKS)
- Kubernetes on Microsoft Azure (AKS)
- Kubernetes On-Premise using Kubeadm and Kubespray
- Other Kubernetes Distributions

## Module 15 - Advanced Scheduling

- Requests & Limits
- Taints & Tolerations
- Affinity & Anti-Affinity

## Module 16 - Autoscaling

- Scaling pods horizontally
- Scaling pods vertically
- Scaling cluster horizontally
- Lab 10: Configuring Autoscaling

## Module 17 - Kubernetes Storage

- Introduction
- Volumes
- PersistentVolumes

# Sela.



- PersistentVolumeClaims
- StorageClasses

## Module 18 - StatefulSets

- StatefulSets
- Lab 11: Working with StatefulSets

## Module 19 - Summary

- Course Summary
- What Next?