Mastering Docker

Module 1: Getting started with Docker - 3h

1. What is Docker
2. Container Vs Virtual Machine
3. Docker Architecture
4. Installing Docker
5. Download Your First Image
6. Create Multi Stage Dockerfile
7. Run Applications as Docker Container
8. Run Applications as Docker Container (Continued)
9. Docker Commands
10. Lab Practice

Module 2: Handling Docker Containers - 3h

1. Controlling Application in Docker
2. Container Lifecycle (Details)
3. Difference Between COPY and ADD
4. Dockerfile PHP
5. Build & Run
6. PHP+MYSQL Docker Images
7. Lab Practice

Module 3: Docker Networking & Deploying Two Tier Application - 3h

1. Docker Network
2. Create a Docker Network
3. Build & Run a PHP WebApp Docker Image
4. Build or Pull & Run a MySQL Image
5. Exec into MySQL DB and Import Data
6. Check PHP+MYSQL WebApp
7. PHP Framework: Build Docker Image of Laravel
8. Lab Practice

Module 4: Docker Registry & Publish Image - 3h

1. **Build & Run Multi Stage Dockerfile**
2. **Docker Registry**
3. **Publish Image**
4. **Private Repository**
5. **Tagging Docker Images**
6. **Lab Practice**

Module 5: Docker Compose & Sharing Data Volumes - 3h

1. **What is Docker Compose**
2. **Docker Compose**
3. **PHP+MYSQL Docker Compose**
4. **PHP+MYSQL Docker Compose Implementation**
5. **Volumes**
6. **Shared Volumes**
7. **Lab Practice**

Module 6: Docker Compose Practice - 3h

1. **Build Spring Boot Java Application**
2. **Build PHP Laravel Application**
3. **Build Python Flask Application**
4. **Docker Compose Resource Management**
5. **Lab Practice**

Module 7: Docker Containers with Nginx - 3h

1. **What is Nginx**
2. **Nginx Setup**
3. **Python Flask +MySQL Docker Container**
4. **Connect Docker App with Nginx**
5. **Lab Practice**

Module 8: Docker CI/CD Pipeline - 4h

1. **What is CI/CD Pipeline**
2. **Docker CI Pipeline (Part 1)**
3. **Docker CD Pipeline**
4. **Live Application Deployment with Docker CI/CD & AWS/Azure Cloud Server**
5. **Lab Practice**

Module 9: Microservices Deployment with Docker - 4h

1. **What is Microservices**
2. **How to write Docker Compose YML deployment file for Microservices**
3. **Setup Nginx in AWS/Azure Cloud Server**
4. **Deploy Microservices with Nginx in AWS/Azure Cloud Server**
5. **Lab Practice**

Module 10: Docker Containers Extra - 3h

1. **Difference between RUN, CMD, & Entry point in Docker**
2. **Docker Arguments**
3. **Application deployments with docker build arguments**
4. **Lab Practice**