Course Outline:

- Container Development Environments

  - Rapid development with code mounts and automatic reloading

  - Attaching debuggers to containerized processes

  - Installing Kubernetes development environments

- Container Lifecycle

  - Optimizing image design to take advantage of the container lifecycle

  - Runtime operations to avoid or mitigate

  - Implementing logging, resource management and healthchecks for containers

  - Handling container exit

  - Introduction to developer-driven operational control

- Containerizing Applications

  - Migrating preexisting applications from VMs to containers

  - Refactoring applications for microservices

  - Hybrid applications (containerized + uncontainerized)

- Container Health & Monitoring

  - Implementing container healthchecks with Kubernetes

  - Integrating Prometheus monitoring with Kube applications

- Introduction to Containerized Continuous Integration

- o Differences between traditional and containerized continuous integration

- o Tooling choices for CI chain components

- o Recommended CI chain architecture

- CI Agent Deployment

  - o Designing access control patterns for CI agents

  - o Installing and integrating Jenkins with Kubernetes

- Building Images in CI

  - o Implementing build environments

  - o Designing reusable image hierarchies

- Testing in CI

  - o Unit and integration testing in containers

  - o Testing pipeline design

  - o Integrating security scanning in a testing pipeline

- Releasing Containerized Applications

  - o Signing images with content trust

  - o Packaging applications with Helm