



Course syllabus

Faculty of Technology

Department of Computer Science and Media Technology

2DV013 Cloud native applications, 15 högskolepoäng

2DV013 Cloud native applications, 15 credits

Main field of study

Computer Science

Subject Group

Informatics/Computer and Systems Sciences

Level of classification

First Level

Progression

G2F

Date of Ratification

Approved by Faculty of Technology 2022-02-07

The course syllabus is valid from autumn semester 2022

Prerequisites

The web as an application platform, 1DV027 code 2201 and 2202

Objectives

Knowledge and understanding: After completing the course the student is expected to:

- A.1 Be able to explain Continuous Integration, Continuous Delivery, and Continuous Deployment
- A.2 Have knowledge of using server configuration management platforms
- A.3 Have knowledge of different methods and technologies for continuous software delivery
- A.4 Understand architectural and design patterns for cloud applications
- A.5 Explain environmental aspects of cloud-based applications

Ability and skill: After completing the course the student is expected to:

- B.1 Generate automatic server configurations
- B.2 Create and maintain a continuous delivery pipeline for software development
- B.3 Create independently deployable, scalable software systems

Evaluation and approach

After completing the course the student is expected to:

- C.1 Analyze and create a model for continuous software delivery from a given situation

Content

The purpose of the course is to learn to create software systems that can scale and be independently deployable; cloud-native applications.

- Configuration Management platforms
- Container orchestration
- Test suites in delivery pipelines
- Elastic scaling for applications
- CNCF (Containerization, CI/CD, Orchestration & application definition, Observability & Analysis, Networking, Policy & Security, Distributed Database & Storage, Streaming and messaging, Container Registry & Runtime, Software Distribution)

Type of Instruction

The training is built upon learning activities, including lectures, tutorings sessions, hand-in assignments, and oral hearing.

The theory is combined with practical events.

The course is offered as a campus or distance course. It is required to have access to a computer. Distance students are also required to have access to a headset, webcam, and internet.

Examination

The examination of the course is divided as follows:

Code	Designation	Grade	Credits
2201	Assignment, Infrastructure	U/G	3,00
2202	Assignment, Software Patterns and Architecture	U/G	3,00
2203	Group project	U/G	6,00
2204	Oral exam	U/G/VG	3,00

The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).

Repeat examination is offered in accordance with Local regulations for courses and examination at the first and second-cycle level at Linnaeus University.

If the university has decided that a student is entitled to special pedagogical support due to a disability, the examiner has the right to give a customised exam or to have the student conduct the exam in an alternative way.

Objectives achievement

The examination elements are linked to the course objectives in the following ways:

Goal	2201	2202	2203	2204
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A.1	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
A.2	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
A.3		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.5			<input checked="" type="checkbox"/>
B.1			<input checked="" type="checkbox"/>
B.2			<input checked="" type="checkbox"/>
B.3			<input checked="" type="checkbox"/>
C.1			<input checked="" type="checkbox"/>

Course Evaluation

During the implementation of the course or in close conjunction with the course, a course evaluation is to be carried out. Results and analysis of the course evaluation are to be promptly presented as feedback to the students who have completed the course. Students who participate during the next course instance receive feedback at the start of the course. The course evaluation is to be carried out anonymously.

Credit Overlap

The course cannot be included in a degree along with the following course/courses of which the content fully, or partly, corresponds to the content of this course: 2DV611, 7.5 credits

Required Reading and Additional Study Material

Recommended learning resources

Web-based learning resources such as recorded videos and scientific articles