



Faculty of Health, Science and Technology  
Computer Science

# Syllabus

## Essential Software Architecture

<b>Course Code:</b>	DVAD16
<b>Course Title:</b>	Essential Software Architecture <i>Väsentliga koncept inom mjukvaruarkitektur</i>
<b>Credits:</b>	3
<b>Degree Level:</b>	Master's level
<b>Progressive Specialisation:</b>	Second cycle, has only first-cycle course/s as entry requirements (A1N)

**Major Field of Study:**  
DVA (Computer Science)

### Course Approval

The syllabus was approved by the Faculty of Health, Science and Technology 2021-02-17, and is valid from the Autumn semester 2021 at Karlstad University.

### Prerequisites

Upper secondary level English 6 and Computer Science 60 ECTS credits, including at least 7.5 ECTS credits in Software Engineering, or two years of work experience in the IT sector, or equivalent

### Learning Outcomes

Upon completion of the course, students should be able to:

- explain and apply the fundamental concepts of different types of modern software architecture,
- explain and describe the architecture of a software system in terms of main design decisions and the fundamental structure and behaviour of the system,
- compare and contrast different software architecture alternatives with each other, and
- critically evaluate the suitability of a software architecture in relation to the desired functionality and quality attributes of the system.

## **Content**

The course introduces methods and techniques to design and describe software architectures and explain the architectural concepts underpinning the structure and behavior of modern software systems, such as service-oriented systems, cloud-based systems and micro-services. The course furthermore discusses typical tasks and responsibilities of software architects in terms of practice.

Topics include:

- Fundamental software architecture concepts and principles
- Description and communication of software architectures through architectural views
- Software architecture design principles
- Architectures of modern software systems, such as service-oriented architectures, web services, micro-services, and cloud-based systems

Instruction is in the form of lectures, workshops, and laboratory sessions.

## **Reading List**

See separate document.

## **Examination**

Assessment is based on an individual written exam and hand-in assignments.

If students have a decision from Karlstad University entitling them to Targeted Study Support due to a documented disability, the examiner has the right to give such students an adapted examination or to examine them in a different manner.

## **Grades**

One of the grades 5 (Pass with Distinction), 4 (Some Distinction), 3 (Pass) or U (Fail) is awarded in the examination of the course.

## **Quality Assurance**

Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation. Students will be informed of the result of the evaluation and of any measures to be taken.

## **Course Certificate**

A course certificate will be provided upon request.

## **Additional information**

The course DVAD16 cannot be included in the same degree programme as the course DVAD11.

The local regulations for studies at the Bachelor and Master levels at Karlstad University stipulate the obligations and rights of students and staff.