



Faculty of Health, Science and Technology
Computer Science

Syllabus

Embedded Systems

Course Code:	DVGB15
Course Title:	Embedded Systems <i>Inbyggda system</i>
Credits:	4.5
Degree Level:	Undergraduate level
Progressive Specialisation:	First cycle, has less than 60 credits in first-cycle course/s as entry requirements (G1F)

Major Field of Study:
DVA (Computer Science)

Course Approval

The syllabus was approved by the Faculty of Health, Science and Technology 2024-01-30, and is valid from the Autumn semester 2024 at Karlstad University.

Prerequisites

Operating Systems, 5 ECTS credits, and Data Structures and Algorithms, 7.5 ECTS credits, or equivalent

Learning Outcomes

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

- explain the basic principles of embedded systems and real-time systems,
- give an account of the structure and function of real-time operating systems,
- analyse real-time systems in terms of guaranteed fulfilment of time and resource requirements, and
- use an existing real-time kernel to create their own real-time applications.

Content

The course covers real-time operating systems, scheduling and resource management in

real-time systems, design and analysis of real-time software, and modelling and verification of time and resource requirements in real-time systems. The course content is treated primarily in lectures, seminars, course literature with reading assignments, and additional materials. Students also complete hand-in assignments. Laboratory supervision is normally offered only for scheduled laboratory sessions and only for the duration of the course.

Reading List

See separate document.

Examination

Assessment is based on a written exam and a laboratory task completed in groups and presented in a presentation seminar.

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 Distinction (VG), Pass (G), or Fail (U) is awarded in the examination of the course. For students in Engineering, one of the grades 5 (Pass with Distinction), 4 (Pass with 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 local regulations for studies at the Bachelor and Master levels at Karlstad University stipulate the obligations and rights of students and staff.