Faculty of Health, Science and Technology
Computer Science

Syllabus

The Computer as a Tool for Engineers

Course Code:	DVGA23
Course Title:	The Computer as a Tool for Engineers
	Datorn som ingenjörsverktyg
Credits:	6
Degree Level:	Undergraduate level
Progressive Specialisation:	First cycle, has only upper-secondary level entry requirements (G1N)

Major Field of Study:
DVA (Computer Science)

Course Approval
The syllabus was approved by the Faculty of Health, Science and Technology 2019-03-04, and is valid from the Autumn semester 2019 at Karlstad University.

Prerequisites
General admission requirements plus upper secondary level Mathematics 3c, or equivalent

Learning Outcomes
Upon completion of the course, students should be able to:
- formulate simple algorithms for given problems and transform these into source code,
- use a suitable programming environment to create, execute, and debug basic programs,
- use data types and variables for storing data,
- design simple programs in a high level language, that is break problems into subproblems, implement functions, and perform step-by-step tests,
- explain and document simple programs in writing, and
- use a suitable programming environment to process, analyse, and present data from an external data

source.

Content

The course deals with the basics of problem solving in a high level language. Also treated are engineering applications such as handling and processing data sets. The course includes the following components:
- Problem analysis and algorithms
- Data types, variables, and operators in programming, including sequence, selection, and iteration
- Functions, modular programming
- Lists and sequences
- File handling
- Debugging and testing

Reading List

See separate document.

Examination

Assessment is based on mandatory laboratory assignments and hand-in reports and on a written exam.

Grades

One of the grades Pass with Distinction (5), Pass not without Distinction (4), Pass (3), or Fail (U) 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.