



Faculty of Economic Sciences, Communication and IT  
Computer Science

## Syllabus

### Course Approval

The syllabus was approved by the Faculty Board of Economic Sciences, Communication and IT on 16 April 2009, and is valid from the Spring semester of 2008 at Karlstad University.

**Course Code:** DVGC01

**Programming Languages, 7.5 ECTS Credits**  
**(Programspråk, 7.5 Swedish credit points)**

**Degree Level:** Bachelor

**Progression Level:** C

### Language of Instruction

English

### Prerequisites

Computer Science 1-30 ECTS cr. including DVGB03 Data Structures and Algorithms 7.5 ECTS cr. or equivalent.

### Major Field of Study

Computer Science

### Learning Outcomes

Upon completion of the course students should be able to:

- give an account of different programming paradigms,
- give an account of the basic control structures of programming languages, i.e. sequence, choice and repetition,
- give an account of the syntax and semantics of programming languages and their description,
- give an account of the Backus Naur form (BNF) as a syntax description model.
- describe the syntax of a programming language in BNF,
- implement a syntax analyser (a parser),
- identify the basic principles of and write simple programmes in a programming language unfamiliar to the students, and
- write laboratory reports.

### Content and Form of Instruction

The course includes a review of different programming languages with special reference to programming paradigms: imperative, functional and declarative. Object-oriented language is also taught.

The course includes the concepts syntax, semantics, grammar, lexical analysis, syntax analysis and symbol table, implementation of execution systems, memory, stack, activation posts, and the structure of language.

Exercises and laboratory work are carried out in an imperative or object-oriented language, a functional language and a declarative language.

The course includes both theory and practice in the forms of individual reading supported by lectures and study guides, and group exercises and laboratory work.

#### Reading List

See separate document.

#### Examination

Examination is in the form of laboratory assignments, hand-in assignments and a written exam.

#### Grades

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

#### 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 assessment is based on student views and experiences as reported in written course evaluations and/or group discussions. Students will be informed of the result of the evaluation and of the measures to be taken.

#### Course Certificate

A course certificate will be provided upon request.

#### Additional Information

Students who enrolled before 1 July 2007 will complete their studies in accordance with the requirements of the earlier admission. Upon completion students may request degree and course certificates to be issued under the current ordinance if they meet its requirements.

The local regulations for studies at the Bachelor's and Master's levels at Karlstad University, ref. C2007/368, stipulate the obligations and rights of students and staff.

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