



Faculty of Health, Science and Technology  
Computer Science

# Syllabus

## Computer Security I

|                                    |  |
|------------------------------------|--|
| <b>Course Code:</b>                | DVGC19   |
| <b>Course Title:</b>               | Computer Security I<br><i>Datasäkerhet I</i>   |
| <b>Credits:</b>                    | 7.5  |
| <b>Degree Level:</b>               | Undergraduate level  |
| <b>Progressive Specialisation:</b> | First cycle, has at least 60 credits in first-cycle course/s as entry requirements (G2F) |

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

### Course Approval

The syllabus was approved by the Faculty of Health, Science and Technology 2019-02-27, and is valid from the Spring semester 2019 at Karlstad University.

### Prerequisites

45 ECTS credits in Computer Science, including Computer Networking I (7.5 ECTS credits) and Operating Systems (7.5 ECTS credits), or equivalent

### Learning Outcomes

Upon completion of the course students should be able to:

- explain basic security terminology and security aspects such as secrecy, privacy, authentication, threat, and vulnerability,
- explain and describe a selection of security problems and protective measures such as access control, malicious software, encryption, and operating system security,
- give an account of cryptographic systems based on symmetrical and asymmetrical methods and the primary algorithms and protocols applied in such cases,

- reflect upon problems that may arise in relation to security, personal integrity, and ethics,
- give an account of the most common security protocols in network systems, and
- give an account of the results of completed tasks, orally and in writing.

### **Content**

The course introduces the area of IT security and consists of three parts.

The first part has a focus on aspects of basic computer security and covers for instance ISO security services (secrecy, privacy, and authentication), personal integrity, and ethics. The second part has a focus on network security and treats areas such as IP security, transport storage security, firewalls, and access control. The third part is an introduction to the area of cryptography.

Instruction is primarily in the form of lectures, exercises, and laboratory work. The course content is conveyed through literature with related reading assignments and additional materials.

### **Reading List**

See separate document.

### **Examination**

Assessment is based on a written exam and laboratory reports.

If students have a decision from Karlstad University entitling them to special pedagogical 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 (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.