Blekinge Institute of Technology
Department of Computer Science

Revision: 1
Reg.no: BTH-4.1.14-0308-2022

COURSE SYLLABUS

Säkerhet för kritisk infrastruktur (operativ teknologi)

Security for Critical Infrastructure (Operational Technology)

7.5 credits (7,5 högskolepoäng)

Course code: DV2617
Main field of study: Computer Science, Software Engineering
Disciplinary domain: Technology
Education level: Second cycle
Specialization: A1N - Second cycle, has only first cycle course/s as entry requirements

Language of instruction: English
Applies from: 2022-08-29
Approved: 2022-03-01

1. Decision

This course is established by Dean 2021-11-10. The course syllabus is approved by Head of Department of Computer Science 2022-03-01 and applies from 2022-08-29.

2. Entry requirements

Admission to the course requires at least 120 credits, of which at least 90 credits are in a technical area, and a minimum of 2 years professional experience within an area related to software-intensive product and/or service development (shown by, for example, a work certificate from an employer).

3. Objective and content

3.1 Objective

The course aims to provide students with the skills of ICS (Industrial Control Systems) threats analysis including Advanced Persistent Threats (APTs), exploits, supply-chain attacks, wipers (destroyers), and ransomware that are often used in the cyberattacks against critical infrastructure.

3.2 Content

The course provides knowledge and skills needed for analysis of ICS threats and for defending critical infrastructure against cyberattacks. This is achieved by analyzing the most destructive cyberattacks against ICS that have been carried out during the last decade, including but not limited to Stuxnet, BlackEnergy, Industroyer, Solorigate, and WhisperGate. This course also covers secure configuration and defense approaches for SCADA (Supervisory Control And Data Acquisition) and cyber physical systems (CPS), as well as applicable cybersecurity regulations and standards.

4. Learning outcomes

The following learning outcomes are examined in the course:

4.1 Knowledge and understanding

On completion of the course, the student will be able to:
• Know the ICS threat landscape
• Understand tactics and techniques used in the cyberattacks against critical infrastructure
• Know defense technologies for ICS

4.2 Competence and skills

On completion of the course, the student will be able to:
• Detect, analyze, classify, and block cyberattacks against ICS
• Choose and apply proper defense solutions for ICS

4.3 Judgement and approach

On completion of the course, the student will be able to:
• Evaluate and assess the state of cyber defense of specific ICS environments

5. Learning activities

The teaching is organized around online lectures, pre-recorded videos, together with written material, literature, and research literature. Throughout the course, communication, feedback, and discussions with teachers and fellow participants will take place through email and the course's online learning platform.

6. Assessment and grading

Modes of examinations of the course

Code	Module	Credits	Grade
2210	Written assignment 1	2.5 credits	GU
2220	Written assignment 2	2.5 credits	GU
2230	Written assignment 3	2.5 credits	GU

The course will be graded G Pass, UX Fail, supplementation required, U Fail.

The information before a course occasion states the assessment criteria and make explicit in which modes of examination that the learning outcomes are assessed.

An examiner can, after consulting the Disability Advisor at BTH, decide on a customized examination form for a student with a long-term disability to be provided with an examination equivalent to one given to a student who is not disabled.

7. Course evaluation

The course evaluation should be carried out in line with BTH:s course evaluation template and process.

8. Restrictions regarding degree

The course can form part of a degree but not together with another course the content of which completely or partly corresponds with the contents of this course.

9. Course literature and other materials of instruction

Materials such as research articles and other course materials, as well as recommendations for additional reading, are provided via the courses' online platform or the BTH library services.