Critical Infrastructure Protection 7.5 credits Z7003E

Säkerhet i infrastruktur

Course syllabus admitted: Spring 2021 Sp 3 - Present

DECISION DATE
2021-02-02

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Critical Infrastructure Protection 7.5 credits Z7003E

Säkerhet i infrastruktur

Second cycle, Z7003E

Education level	Grade scale	Subject	Subject group (SCB)
Second cycle	U G VG	Systemvetenskap	Informatics/Computer and Systems Sciences

Entry requirements

The course assumes basic knowledge of Computer Science or Systems Science, 60 ECTS: D0004N Database Systems I, D0005N Database Systems II, D0006N Object oriented Analysis and Design, D0007N Object oriented programming, D0019N Software Development with Java, D0020N Information Systems Development, I0005N IT-Design and Systems Thinking, D0006N Design of IT or equal courses.
Documented skills in English language.

Selection

Examiner

Ali Ismail Awad

Course Aim

The aim of the course is to develop knowledge and an attitude that contribute to understanding and implementing the fundamental principles of Critical Infrastructure Protection (CIP). After the course the student will be able to:

1. Evaluate and reflect on the contextual requirements of critical infrastructure protection and explore different models specifically tailored to critical systems.

2. Reflect on some theoretical and methodological approaches for critical infrastructure.

3. Analyze and design secure critical infrastructure according to security approaches.

4. Manage risk processes and system reliability in the critical infrastructures.

Contents

Critical infrastructure means the computers, computer systems, and/or networks, whether physical or virtual, and/or the computer programs, computer data, content data and/or traffic data so vital to a country that the incapacity or destruction of or interference with such systems and assets would have a debilitating impact on security, national or economic security, national public health and safety, or any combination of such matters. The systems and networks that make up the infrastructure of society are highly interconnected and are interdependent to such a degree that a disruption to just one of those systems can be catastrophic.

The disruption or loss of critical infrastructures may result in serious consequences for the functioning of the organisations and, in the most unfortunate cases, loss of critical information. Therefore, the security, reliability and resilience of these infrastructures are critical for society as a whole. This course will provide a general overview of different aspects of critical infrastructure protection in order to enable students to understand the fundamental principles of this field. The course is designed to provide theoretical underpinnings as well as practical knowledge in the field of CIP, which will help to contribute knowledge to student's existing theoretical and practical skills and experiences.

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Realization

Each course occasion´s language and form is stated and appear on the course page on Luleå University of Technology's website.

During the course, students will work on individual tasks. Lectures and course material will cover the fundamental concepts, theories, methodologies, importance, function and scope of critical infrastructure protection.

Teaching is in English and on Internet for distance students or at campus for the students living here. IT support: Learning management system (Canvas), e-mail and phone.

Canvas Learning Management System is used for delivering course material, information and submissions. Knowledge is shared and created within the course through virtual meetings with teachers and other students for discussions, supervision, teamwork and seminars. For student on campus there will be meetings on campus.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided.
Individual tasks and group tasks, 6 hp (U, G, or VG)
Written exam, 1.5 hp (U, G, or VG)

In order for a student to get VG in the whole course, a VG grade must be accomplished in the individual tasks and group tasks and in the written exam.
For the G grade, a student should achieve a grade G in the individual tasks and group tasks, as well as in the written exam.

Remarks

Technical requirements: Access to PC, microphone, webcam, a permission to install software, and Internet connection of minimum 0,5 Mbps.

Literature. Valid from Spring 2021 Sp 3

• Title: Industrial Network Security: Securing Critical Infrastructure Networks for
Smart Grid, SCADA, and Other Industrial Control Systems
• Authors: Eric D. Knapp and Joel Langill
• Paperback: 480 pages
• Publisher: Syngress Media, U.S.; 2nd Revised edition (17 Dec 2014)
• ISBN-10: 0124201148
• ISBN-13: 978-0124201149

Course offered by

Department of Computer Science, Electrical and Space Engineering

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Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0001	Individual tasks and group tasks	U G VG	6	Mandatory	S21	
0002	Written exam	U G VG	1.5	Mandatory	S21	

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Syllabus established

by Jonny Johansson, HUL SRT 2021-02-02

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