



## COURSE SYLLABUS

### Drift av nätverk och nätverkstjänster

#### Network and Service Operations

7.5 credits (7,5 högskolepoäng)

**Course code:** DV2602

**Main field of study:** Computer Science, Electrical Engineering

**Disciplinary domain:** Technology

**Education level:** Second cycle

**Specialization:** AIN - Second cycle, has only first cycle course/s as entry requirements

**Language of instruction:** English

**Applies from:** 2022-01-17

**Approved:** 2021-09-01

#### 1. Decision

This course is established by Dean 2020-06-09. The course syllabus is approved by Head of Department of Computer Science 2021-09-01 and applies from 2022-01-17.

#### 2. Entry requirements

För tillträde till kursen krävs minst 7,5 hp avklarade i datakommunikation och minst 7,5 hp avklarade i objektorienterad programmering, 7,5 hp.

#### 3. Objective and content

##### 3.1 Objective

The purpose of this course is to provide knowledge in processes, methods and technologies for installation, operations and management of communication networks, and associated services. The course problematizes the challenges due to the number of network components, services and users. The course provides also an overview of network and service configuration, as well as the monitoring of these.

##### 3.2 Content

The course has two parts:

###### Part A

- Basics, concepts and concepts for the operation of communication networks.
- Repetition of network principles (architecture / topology, technology and protocols).
- The basics of IEEE 802; VLAN, Link aggregation, switching, security
- Basic protocols in the interface between layers 2 and 3.
- Overview of management goals, procedures, models and protocols.
- Introduction to virtualization using "Containers"
- Overview and review of automation and orchestration systems.

###### Part B

- Operation of communication networks: configuration, error handling, measurement and analysis of performance in networks and services, as well as security.

#### 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:

- suggest and argue for an architecture for a communication network
- describe the problems that may arise when modifying an existing communication network
- explain the challenges that exist due to network scaling

#### 4.2 Competence and skills

On completion of the course, the student will be able to:

- design and implement a simple communication network
- put into operation a monitoring system of networks and network services
- use basic tools to manage networks and related services

#### 4.3 Judgement and approach

On completion of the course, the student will be able to:

- evaluate the problems that may arise in the administration and management of large network systems.

#### 5. Learning activities

The course contains lectures, seminars and exercises. During lectures / seminars, the student goes through the theories which they then apply during exercises. The course exercises must be carried out individually or in groups. The student must also individually write a reflective report on the course content

#### 6. Assessment and grading

Modes of examinations of the course

Code	Module	Credits	Grade
2205	Assignment 1	2 credits	GU
2215	Assignment 2	2 credits	GU
2225	Assignment 3	2 credits	GU
2235	Written Report[1]	1.5 credits	AF

[1] Determines the final grade for the course, which will only be issued when all components have been approved.

The course will be graded A Excellent, B Very good, C Good, D Satisfactory, E Sufficient, FX Fail, supplementation required, F 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

Course literature and other materials of instruction

- James F. Kurose und Keith W. Ross: "Computer Networking: A Top-Down Approach", Prentice Hall; 7th edition, 2016. ISBN-10: 0133594149| ISBN-13: 978-0133594140
- A. Tanenbaum, D. Wetherall, "Computer Networks", Pearson, 5th edition, 2010, ISBN-13: 9780133072624
- Rich Seifert, James Edwards, "The All-New Switch Book: The Complete Guide to LAN Switching Technology", 2nd Edition, Wiley, ISBN-13: 978-0470287156 | ISBN-10: 9780470287156

#### 10. Additional information

This course replaces the course ET2598