Hanze

Course: Infrastructures and Security — credits: 5

Course code	ITVP20INF
Name	Infrastructures and Security
Study year	2025-2026
ECTS credits	5
Language	Dutch, with parts in English
Coordinator	M. Kakavand
Modes of delivery	Lecture
Assessments	Assignments Infrastructures and Security - Other assessment English and Ethics - Other assessment Exam Infrastructures and Security - Computer, organised by STAD examinations

Learning outcomes

- The student explains basic network architecture concepts and their components.
- The student is able to describe both the TCP/IP protocol stack and the OSI model, and analyze the functions of each layer within these architectures.
- The student identifies and compares important Internet protocols such as HTTP, SMTP, DHCP, DNS, TCP, UDP, and IP, and explains their use cases.
- The student analyzes transport layer services and explains how applications utilize them in network communication.
- The student is able to identify subnets and explain how a network can be divided into suitably sized subnets.
- The student identifies basic network security threats and proposes appropriate mitigation techniques.
- The student communicates and acts with knowledge of his own cultural background and culturally determined values and norms within a pre-structured, international IT context.
- The student expresses himself orally and in writing in English at level B2 in a pre-structured IT context.
- The student is aware of ethical dilemmas and themes within ICT processes and takes this into account in his argumentation in a defined IT context.

Content

In the **Infrastructure and Security** course, we explore the fundamental question: **How does the Internet work, and how can we use it securely?** This course covers essential topics, including **Wi-Fi, Internet Protocol (IP), DHCP, HTTP, DNS, TCP, UDP, and Encapsulation.**
The primary objective is to provide students with a foundational understanding of the **OSI and TCP/IP models,** focusing on their structures, functions, and associated protocol suites. Students will learn to distinguish between these models, comprehend how each layer contributes to network communication, and evaluate the security aspects of these layers.

The course is delivered using a **blended learning model**, with a strong emphasis on **practical sessions.** Note that there are **no traditional lectures**; instead, students will explore the theoretical concepts of this course through self-study.
Our journey through this course aims to provide a comprehensive understanding of the **how, what, and why** of computer networks. The weekly topics guide the roadmap for this learning experience:

- Computer Networks and the Internet
- Application Layer
- Transport Layer
- Network Layer
- Link Layer
- Network Security

Because you can also work with international clients and colleagues in the business world, this course focuses on your English language skills, which is combined with ethics. As a security expert, it is important to be aware of ethical dilemmas in the area of, for example, privacy. By discussing these types of themes, you work on developing a critical attitude.

Included in programme(s)

Information & Communication Technololgy, Major SE
Information & Communication Technology, Major NSE
Information and Communication Technology, Major BITM

School(s)

School of Communication, Media & IT

share your talent. move the world.

Although every effort has been taken to ensure the accuracy of the information in the ECTS Course Catalogue, we cannot guarantee that the content and the information contained in it is always up-to-date, complete or true. Accordingly, no rights can be derived from the contents of the catalogue.