

Fundamentals of Networking

Subject area: Computer Science/ICT

University:	TalTech
Level:	BA2, BA3
Teaching mode:	hybrid: some students participate online, other students attend real-life
Instructor(s):	Mohammad Tariq Meeran, Fuad Budagov

Short description

The aim of this course is to provide the foundation in the field of computer networks, empower students to learn the required theoretical knowledge and practical skills in order to build, operate, and troubleshoot a small local area network (LAN) using switches and routers.

Full description

This course introduces the architectures, models, protocols, and networking elements that connect users, devices, applications and data through the Internet and across modern computer networks. It also introduces the principles and structure of IPv4 and IPv6 addressing and the fundamentals of Ethernet concepts, media, and operations required to build a strong foundation for students who are stepping into the ICT field. By the end of this course, students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes.

Learning outcomes

After completing this course, the student:

- implements basic host, switch and router configuration;
- explains how OSI model and the TCP/IP protocol suite enables devices to access local and remote network resources;
- converts numbers between decimal, binary and hexadecimal numbering systems;
- calculates and implement an IPv4 and IPv6 subnetting scheme to efficiently segment a network;
- configures switches and routers with device hardening features to enhance security;
- implements a network design for a small network to include a router, a switch, and end devices.

Recommended in particular for students of the following study programmes

Computer Science

General information

Contact hours per week: 4 hours

Total workload: 156 hours (in student hours for the whole course)

ECTS credits: 6 ECTS

Language: English

Course start date: 30 January 2023

Course end date: 09 June 2023

Add. info about start date: Please see the schedule for the exact start date, at the moment the first say of the semester is given.

Weekly teaching day/time:

Time zone: CET +1 (Estonia, Israel)

Further information:

Prerequisites: There are no pre-requisites.

Activities and methods: Lectures, Lab-work

Presence on campus: Presence on campus is not required, EuroTeQ students can participate via a telepresence robot.

Final examination

Form: assignment

Date:

Location/format: Students have to complete an assignment.

Re-sit possibility: yes

Transcript available: end of semester

Add. info/requirements:

Registration

To register for this course, follow the registration requirements of your **home university** as specified here: www.euroteq.eu/courses-registration.

Administration

Number of places:

Minimum participants:

Internal course code: ICA0019

Contact: mohammad.meeran@taltech.ee

This course is part of the EuroTeQ Engineering University joint course catalogue 2023. This is a collaborative activity of the partner universities DTU, L'X, TU/e, TalTech, CTU, TUM as well as Technion. Students from these universities can participate in the offered courses. It is the responsibility of the student to check if you fulfil the requirements to participate in a specific course. Students are also advised to check with their home institution how to get recognition of the ECTS credits gained in courses of the EuroTeQ course catalogue. For further information about EuroTeQ Engineering University, visit www.euroteq.eu or get in touch with the above-mentioned point of contact.