

From the Internet to the IoT: Fundamental of Modern Computer Networking

Subject area: Computer Science/ICT

University: L'X
Level: MA1, MA2
Teaching mode: completely online, not time-specific
Instructor(s): Thomas Heide Clausen

Short description

In short, this course provides an in-depth understanding of “how the net works” (pun intended), and gives the necessary baggage for an engineer (regardless of area of exercise) to be able to design communicating systems.

Full description

<https://synapses.polytechnique.fr/catalogue/2021-2022/ue/592/INF557-from-the-internet-to-the-iot-fundamentals-of-modern-computer-networking?from=P1272>

Learning outcomes

To offer pragmatic and practical approach to communicating systems and to computer networking
To understand, for each of the four major functional layers in a protocol stack (data-link, internetwork, transport, and application) the fundamental ideas, algorithms, and architectural principles, that apply “from the Internet, and to the IoT”

To acquire the principles behind TCP/IP Networking

To become familiar with modern Internet and IoT protocols: from IPv6 to 6LoWPAN, from ALOHA through Ethernet and WiFi to LoRa and Bluetooth — and from the WEB and REST to CORE And CoAP
To acquire practical experience in developing networked applications, and in developing and

implementing protocols.

General information

Contact hours per week: 3.5
Total workload: 49 + personal work (in student hours for the whole course)
ECTS credits: 5

Language: English

Course start date: 01 September 2022
Course end date: 03 June 2023

Add. info about start date: Individualised, can be any date, between Sept. 1, 2022 and April 1, 2023. Please note that the intended start-date must be communicated to Ecole Polytechnique at the time of registration. The course end date should be exactly 10 weeks after the start-date.

Weekly teaching day/time: Available fully asynchronous

Time zone: CET (Denmark, Germany, France, Netherlands, Switzerland, Czech Republic)

Further information:

Prerequisites: Please check at: <https://synapses.polytechnique.fr/catalogue/2021-2022/ue/592/INF557-from-the-internet-to-the-iot-fundamentals-of-modern-computer-networking?from=P1272>

Activities and methods: The course will be available asynchronously, fully on-line, or on-side, through learning flows with short videos, quizzes, homework, lab exercises / tutorials — as well as office-hours via Webex with professors and instructors. While being asynchronous, each student is expected to check in with an instructor over Webex, weekly, following the chosen start-date.

Presence on campus: no

Final examination

Form: Final exam, weekly quizzes, grade assignments

Date:

Location/format: online

Re-sit possibility: yes

Transcript available: end of the semester and generally 8 weeks after the exam.

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: 24- 30

Minimum participants:

Internal course code: INF557

Contact: Interested EuroTeQ students are welcome to, at any time, to come discuss their course choices in chat, or in visio, with the instructors from Ecole Polytechnique who will be teaching the classes. To this end, a dedicated WebEx space is permanently available here: <https://eurl.io/#fCk0f6iWF>.

This course is part of the EuroTeQ Engineering University joint course catalogue 2022/2023. 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.