

## Future Things Design

| Course Workload |       | Assessment form<br>(examination/ graded<br>test/ ungraded test) |
|-----------------|-------|---|
| ECTS            | Hours |   |
| 3               | 108   | Graded test   |

This course is going to teach how to design future systems: secure, reliable, interoperable, modifiable and scalable. Students are going to discover why it is important to have a well-designed architecture and which challenges they might come across while developing their architecture and how to correctly write quality attributes and quality attribute scenarios for a specific developing case. Students will learn how to implement reliable, scalable, resilient applications balancing key performance metrics with cost. Students will learn how to apply software architecture methods to help designing complex IoT and other applications and understand the business impact of the technical decisions that students make as an IoT system.

---

### Course structure:

#### 1. Modeling and Simulation

- 1.1. Introduction to Anylogic
- 1.2. Simple model design in Anylogic
- 1.3. Design things with Tinkercad
- 1.4. Building an Embedded System using Tinkercad

#### 2. Algorithm for inventive problem solving

- 2.1. Overview of TRIZ. Principles of modern TRIZ.
- 2.2. Model based system engineering with SysML