

COURSE DESCRIPTION: Digitalisation Academy program 2020-2021**CURRICULA AND LEARNING OBJECTIVES****Code:** -**Credits:** 15 ECTS**Prerequisites:** 3 year of university studies**How to apply:** Application via www.digitalisationacademy.fi/apply, (selection based on CV and interviews)**Teaching Methods / Modes of Study:** Flipped classroom, Using Udemu (www.udemy.com) video courses, lectures / in-class seminars, attending events and hackathons, Independent work, independent study, group assignments and presentations, workshops and projects. Distance learning via Zoom and MS Teams. (In class lectures, attending events and hackathons only if it is possible during the Covid-19 restrictions)**Language(s):** English**Grading:** Fail/Pass**Responsible person:** Peter Hellström**Teachers:** Peter Hellström, Visiting lecturers, Udemu instructors on video**Additional Information:**

The material of the course is on www.udemy.com, in Microsoft Teams cloud service and on Vimeo.com video database. Homepage for the program is on www.digitalisationacademy.com with additional information.

The Academy student will get one year business license for udemy.com to use video courses during study time (4000 selected online courses). Students will get assigned different courses to study in the Udemu learning database (Learning paths are built for students to follow) and student progress can be followed online in real time. Students can use optional courses for extra information when completing different projects, exercises and problem solving.

The Digitalisation Academy program is a one year study (from October to May) as a part of final year students normal studies in one of following universities:

- VAMK University of Applied Sciences
- Novia University of Applied Sciences
- University of Vaasa.

Digitalisation Academy Program is divided in three main topics:

1. Cyber Security (5 ECTS)
2. Data Science (5 ECTS)
3. Digitalisation (5 ECTS)

Learning Outcomes:**Basic knowledge (included in all three main topics)**

- Use project tools in digitalisation projects (SCRUM)
- Set up a project structure including coordination, activities and working in a project group
- Understand basics of programming and at least one programming language (Python, React, etc.)
- Usage of digital tools for video meetings (cloud services, software, technical devices).
- Usage of digital tools for project work (cloud services, applications, software)

- Usage of online learning databases (Udemy.com) and cloud services for team work (Microsoft Teams, Trello)
- Basic understanding of how to use a cheap and simple minicomputer (Raspberry Pi) for projects, testing and collecting data.

1. Cyber Security

- Basics of Cyber security
- How to test vulnerability in company data networks, Internet services and Internet pages.
- Understand risks and prevent cyber security attacks and breaches regarding industrial products and industrial networks
- Understand cyber security issues when design products and services
- Understand how GDPR affects collecting data and how data needs to be protected and shared in companies

2. Data Science

- Basics of data analysis with statistics and machine learning
- Data Information Visualisation
- Basics of business intelligence (Microsoft Power Bi)
- Basics of how to collect data from business platforms
- Basics of how to collect and save data in a data centre (Microsoft Azur, etc.)
- Basics of cloud computing platforms. Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) used for services such as analytics, virtual computing, storage and networking (Microsoft Azure)
- Basics of AI (machine learning, neural networks, deep learning)
- Explain why different machine learning techniques are used
- Distinguish between unsupervised and supervised machine learning scenarios
- Formulate a real-world problem as a practical project, using one of the Ai techniques
- Understand basics of blockchain
- Understand usage of blockchain in industrial applications like smart contracts, supply chain and financial services.

3. Digitalisation

- Understand basics of IoT, how to collect data using IoT and how to connect IoT devices to network.
- Basics of how to produce services and applications from IoT device collected data
- Basics of autonomous manufacturing using IoT and Edge computing.
- Understand basics of Ui/Ux
- Know how to build Ui/Ux using rapid prototyping, produce user interface for a project (Marvel App)
- Basics of how to build and publish an application
- Know how to build a customer journey for a real world project or problem to be solved (Ux design)
- Basics of 5G network and usage in industrial applications
- Basics of usage of satellite data in digitalisation
- Basics of VR and AR
- How to make digital model using Matlab and Simulink (digital twin)
- Basics of autonomous machines and vehicles

ASSESSMENT

Assessment is based on progress in courses and exercises, including multiple choice quizzes and numerical exercises. The multiple choice and numerical exercises are automatically checked in Udemy (www.udemy.com)

Assessment is also based on how much student is attending the exercises and lessons in the class.

The course is graded as pass/fail (no numerical grades).

Students Workload (time requirement)

Total work load of the student is 405 h of which

- scheduled studies 150 h (contact studies)
- autonomous studies 254 h

Credit units are awarded to students who have a student id at the University of Vaasa, VAMK or Novia.

As a proof of completion of Digitalisation Academy, each student is given a diploma and a certificate.

As a proof of completion for each online Udemy course (www.udemy.com), student is given an electronic certificate that includes a verification link to Udemy, www.udemy.com