13.03.2025

Curriculum at LAB University of Applied Sciences
2025-2026

Bachelor of Engineering, Industrial Information Technology 25S, Double Degree, Lahti

Code	Name	1 y	ECTS total
TLTIIITDD25S-1001	**Professional Core Competences**		**30**
AT00BY14	Modelling	5	5
AT00BY15	Game design basics	5	5
AT00BY30	Game modelling	5	5
AT00BY26	Advanced game programming	5	5
AM00CM59	XR/AR Studio	20	20
AT00BY50	IoT development environments and systems	5	5
AT00BY51	IoT communication systems and monitoring	5	5
AT00BY24	Hybrid mobile programming	5	5
AT00BY22	Frameworks	3	3
AT00BY23	Cloud computing	4	4
AT00CR59	Project Work	5	5
AT00BX89	Web and Game technologies basics	5	5
AT00BX90	Web and Game design	5	5
AT00BX91	Application of web and game technologies	5	5
TLTIIITDD25S-1002	**Complementary Competences**		**15**
TLTIIITDD25S-1003	**Thesis**		**15**
AT00DA41	Thesis	15	15

TLTIIITDD25S-1001 Professional Core Competences: 30 ECTS

AT00BY14 Modelling: 5 ECTS

Learning outcomes
The student knows how
- explain the basic structure of 3D models
- preferably 3D models for different uses
- Create and edit 3D models with different techniques
- create and edit 3D model materials
- use the basic features of the 3D modeling program
- create digital visualizations

AT00BY15 Game design basics: 5 ECTS

Learning outcomes
The student knows how
- explain the basic principles of game design
- make use of playfulness in different contexts
- describe the importance of game testing in game development
- design a game design work process

AT00BY30 Game modelling: 5 ECTS

Learning outcomes
The student knows how
- utilizes modelling in different environments
- take advantage of the advanced features of game engines
- Use new technologies in gaming and augmented reality applications

AT00BY26 Advanced game programming: 5 ECTS

Learning outcomes
The student knows how
- design and implement 2D and 3D games for different game platforms
- take advantage of the physics of game engines
- make use of mathematics and physics to implement game dynamics

Prerequisites
Basic knowledge about 3D Unity and programming with C#

AM00CM59 XR/AR Studio: 20 ECTS

Learning outcomes
The student is able to
- define the concepts of XR (extended reality) and AR (augmented reality) and discuss the possibilities of these and related technologies
- design concepts where XR/AR technologies support user experience, learning, marketing or other client needs and requirements
- produce prototypes that allow the evaluation and further development of XR/AR concepts
- function in their professional role in a multidisciplinary design and production team.

AT00BY50 IoT development environments and systems: 5 ECTS

Learning outcomes
The student is able to
- explain IoT development environments and systems
- develop IoT systems
- analyze IoT development environments and systems

AT00BY51 IoT communication systems and monitoring: 5 ECTS

Learning outcomes
The student is able to
- explain IoT communication technologies
- describe IoT communication systems
- plan a secure IoT communication system
- have the knowledge and skills of Cisco CCNA (5 - 15 ects)

AT00BY24 Hybrid mobile programming: 5 ECTS

Learning outcomes
The student is able to
- Act as a leading software expert in multidisciplinary game and mobile development projects
- Design and implement a hybrid mobile application
- design and implement responsive Mobile first and SPA applications

AT00BY22 Frameworks: 3 ECTS

Learning outcomes
Student is able to
- design and implement a modern web-application
- implement an asynchronous web-application
- use modern frameworks in implementing the web-application

AT00BY23 Cloud computing: 4 ECTS

Learning outcomes
Student is able to
- design and use document databases
- design and implement API interfaces using a programming language
- design and implement a scaleable microservice

AT00CR59 Project Work: 5 ECTS

Learning outcomes
The student is able to:
- use the concepts related to the project in a coherent and justify their actions on the basis of the knowledge base
- find starting points, needs and criteria for project activities
- to act purposefully, to assess the activity and make suggestions for improvement
- applied to the project a variety of different techniques, methods and ways of working
- operate safely, ethically and customer-oriented
- to act responsibly and in a target group and as otherwise required by the project in interactive situations

AT00BX89 Web and Game technologies basics: 5 ECTS

Learning outcomes
The student is able to
- evaluate the impact of network topology and technology on data transmission performance
- utilize LAN services in their own work (DHCP, VLAN, ARP)
- master the basics and maintaining of operating systems (Linux / Windows)
- explain the basic structures of a web application

AT00BX90 Web and Game design: 5 ECTS

Learning outcomes
The student is able to
- describe the importance of the visual user experience in applications
- Design and implement a simple modern web application
- apply image processing methods in the design of user interfaces
- Design and program a simple game

AT00BX91 Application of web and game technologies: 5 ECTS

Learning outcomes
The student is able to
- act as an expert in a small group and solve tasks together
- act as part of a project using agile project methods
- design web and game interfaces
- design and implement game environments

TLTIIITDD25S-1002 Complementary Competences: 15 ECTS

TLTIIITDD25S-1003 Thesis: 15 ECTS

AT00DA41 Thesis: 15 ECTS

Learning outcomes
The student is able to:
- describe the objectives and core contents of their thesis
- plan and describe the stages of the thesis process
- take into account the possible research permit and copyright issues

- implement the thesis on the basis of an approved thesis plan

- present the results or output of their thesis
- report on their thesis in writing in accordance with the thesis guidelines of LAB University of Applied Sciences
- write a maturity test.