07.02.2025

Curriculum at LAB University of Applied Sciences
2025-2026

Bachelor of Engineering, Sustainable Urban Planning (in Finnish) 25K, part-time studies, Lahti

Code	Name	1 y	2 y	3 y	4 y	ECTS total
TLTIKKS25KM-1001	**CORE COMPETENCE**					**180**
TLTIKKS25KM-1025	**Common studies**					**15**
AY00BU56	Developing professional competence 1	1				1
AY00BU57	Developing professional competence 2		1			1
AY00BU58	Developing professional competence 3			1		1
A300CE13	Orientation to Sustainability Thinking	2				2
KE00BT61	English for Work	4				4
KR00BU42	Swedish for Work, Spoken		1			1
KR00BU43	Swedish for Work, Written		1			1
KS00BT59	Expert Communication Skills	4				4
TLTIKKS25KM-1003	**Professional Core Competence**					**120**
TLTIKKS25KM-1026	**Mathematics**					**15**
AT00DE22	Basics of Engineering Mathematics	5				5
AT00DE23	Advanced Engineering Mathematics	5				5
AT00DE24	Economic and Statistical Mathematics		5			5
TLTIKKS25KM-1024	**Physics and Chemistry**					**10**
AT00BT70	Basic studies in physics	3				3
AT00BZ69	Basic physics in building		3			3
AT00DD02	Basic Chemistry	4				4
TLTIKKS25KM-1005	**Basics of urban planning**					**17**
AT00BY70	Sustainable urban structure and land use	6				6
AT00BY65	Environmental inventories		5			5
AT00BY75	Mobility and community	6				6
TLTIKKS25KM-1006	**Green spaces in urban planning**					**6**
TLTIKKS25KM-1007	**Basics of construction**					**13**
AT00DE27	Basics of Geotechnics		3			3
AT00CB15	Basics of Building Engineering	5				5
AT00CB16	Basics of Civil Engineering	5				5
TLTIKKS25KM-1008	**Environmental studies**					**13**
AT00BY67	Ecosystems and climate change	5				5
AT00BY71	Environmental Legislation and Administration		3			3

AT00CP40	Water technology		5			5
TLTIKKS25KM-1009	**Development of residential environments**					**15**
AT00BY84	Development of residential environments		5			5
AT00BY85	Town planning		5			5
AT00BY86	Planning Residential Surroundings		5			5
TLTIKKS25KM-1010	**Digitalisation in urban planning**					**16**
AT00CP51	Computer Aided design and modelling	5				5
AT00CP52	GIS and digital applications	5				5
AT00CB35	Building information model	3				3
AT00CU44	Contemporary of Urban planning			5		5
TLTIKKS25KM-1011	**Municipality as an Operating Environment**					**15**
AT00BY93	Municipality as an Operating Environment			5		5
AT00BY94	Development project of municipality			10		10
TLTIKKS25KM-1012	**Practical Training**					**30**
HA00BU59	Practical Training 1		10			10
HA00BU60	Practical Training 2			10		10
HA00BU61	Practical Training 3				10	10
TLTIKKS25KM-1013	**Thesis**					**15**
AO00BU62	Thesis Planning			5		5
AO00BU63	Thesis Project				5	5
AO00BU64	Thesis Report				5	5
TLTIKKS25KM-1014	**COMPLEMENTARY COMPETENCE**					**60**
TLTIKKS25KM-1015	**Civil engineering**					**15**
TLTIKKS25KM-1016	**Construction**					**15**
TLTIKKS25KM-1017	**Circular economy, community and mobility**					**15**
TLTIKKS25KM-1018	**Urban planning**					**15**
TLTIKKS25KM-1019	**Other studies in LAB (i.e. Language and communication)**					**0**
AY00CZ42	LAB@key (Bachelor´s Degree)					0
TLTIKKS25KM-1020	**Other University Level Studies**					**0**
TLTIKKS25KM-1021	**Exchange studies**					**0**

TLTIKKS25KM-1001 CORE COMPETENCE: 180 ECTS

TLTIKKS25KM-1025 Common studies: 15 ECTS

AY00BU56 Developing professional competence 1: 1 ECTS

Learning outcomes
The student is able to
- plan their own learning and cooperate in situations related to their own field of studies

- recognize their own competence and the needs to develop them further and to plan their careerpath observing them
- act as a group member
- operate in the learning environments of LAB University of Applied Sciences
- picture their own field of studies and its future skills- give feedback on tuition and services and thus participate in the development of education

AY00BU57 Developing professional competence 2: 1 ECTS

Learning outcomes
The student is able to
- utilize various learning opportunities in curriculum
- recognize and aim their own competences to be in level with the future career requirements
- create a study plan that supports the future career goal
- give feedback on tuition and services and thus participate in the development of education

AY00BU58 Developing professional competence 3: 1 ECTS

Learning outcomes
The student is able to
- identify themselves as a learner and develop their own learning skills
- evaluate innovative or alternative future competences required in their own field
- recognize and aim their own competences to be in level with the future career requirements
- masters the professional concepts of their own field and is able to point out their competenciesduring job recruitment processes
- give feedback on tuition and services and thus participate in the development of education

A300CE13 Orientation to Sustainability Thinking: 2 ECTS

Learning outcomes
Identify and define central concepts and frameworks related to sustainability. Recognize the interconnectedness of economic, social and environmental sustainability issues. Understand and develop own individual role in driving sustainability.

Evaluation criterias
Level 1

Pass-Fail

KE00BT61 English for Work: 4 ECTS

Learning outcomes
Proficiency level: B2

The student is able to
- communicate clearly and effectively in different generic and field-specific workplace situations both orally and in writing
- find, evaluate and use information effectively
- function collaboratively in international working environments.

KR00BU42 Swedish for Work, Spoken: 1 ECTS

Learning outcomes
The student is able to
- convey and validate arguments
- use vital field-specific vocabulary
- communicate essential matters about their education, work experience and tasks
- present their field-specific operational environment
- communicate in various working life situations in Swedish.

The student completes the Public Administration Language Test in Swedish.

KR00BU43 Swedish for Work, Written: 1 ECTS

Learning outcomes
The student is able to
- use vital field-specific vocabulary
- communicate essential matters about their education, work experience and tasks
- understand and produce various short texts related to studies and working life
- acquire information on their field in Swedish
-use online dictionaries.

The student completes the Public Administration Language Test in Swedish.

KS00BT59 Expert Communication Skills: 4 ECTS

Learning outcomes
Proficiency level: C2

The student masters Finnish language as a mother tongue in all professional spoken and written communication situations.

TLTIKKS25KM-1003 Professional Core Competence: 120 ECTS

TLTIKKS25KM-1026 Mathematics: 15 ECTS

AT00DE22 Basics of Engineering Mathematics: 5 ECTS

Learning outcomes
Student is able to
-simplify and handle mathematical expressions
- solve basic equations and system of two linear equations
- solve geometric and trigonometric problems
- knows bacis of vectors in plane

AT00DE23 Advanced Engineering Mathematics: 5 ECTS

Learning outcomes
Student is able to
- recognise different functions
- solve exponential and logarithm equations
- solve inequalities
- solve simultaneous equations with the software
- basics of differential calculations

AT00DE24 Economic and Statistical Mathematics: 5 ECTS

Learning outcomes
Student is able to
- percentage and interest calculation
- fundamentals of profit and investment calculation
- basics of probability calculation and statistical mathematics
- use the software as a data analysis tool

TLTIKKS25KM-1024 Physics and Chemistry: 10 ECTS

AT00BT70 Basic studies in physics: 3 ECTS

Learning outcomes
Student is able to
- understand the purpose of the physics in technology
- describe and utilize the SI-unit system and implement
- solve mathematical problems in kinematics, mechanics and thermodynamics
- utilize vectors

AT00BZ69 Basic physics in building: 3 ECTS

Learning outcomes
The student knows the basics of hydrostatics, hydrodynamics, wave theory and electrical engineering required for professional studies in construction technology.

AT00DD02 Basic Chemistry: 4 ECTS

Learning outcomes
The student is able to
- to understand the meaning of the chemistry as an essential part of engineering
- to know the atomic structure and chemical bonds
- to describe and identify common inorganic compounds as well as the groups and structures of organic compounds.
- to use the basic chemical equations and reactions
- use the electrochemical series of metals
- to compute acid and base calculations s and explain the basics related to acid-base titration

TLTIKKS25KM-1005 Basics of urban planning: 17 ECTS

AT00BY70 Sustainable urban structure and land use: 6 ECTS

Learning outcomes
The student can
- Describe a land use planning system
- Define the key features of a sustainable community
- Apply what they learned in a small-scale project

AT00BY65 Environmental inventories: 5 ECTS

Learning outcomes
The student can
- Recognise the most important biotopes (forest types, key biotopes, etc.)
- Find information on previously conducted environmental inventories and conservation programmes
- Recognises the key values related to the built environment
- Draft a small-scale inventory of a cultural environment
- Find information on completed inventories of cultural environments

AT00BY75 Mobility and community: 6 ECTS

Learning outcomes
The student can
- define the impacts of climate change on various societies
- the basics of a transport planning system and transport planning
- calculate the reduction of municipal emissions (including traffic) in various circumstances

TLTIKKS25KM-1006 Green spaces in urban planning: 6 ECTS

TLTIKKS25KM-1007 Basics of construction: 13 ECTS

AT00DE27 Basics of Geotechnics: 3 ECTS

Learning outcomes
The student knows the usability of rock and different earth materials in construction. The student knows the characteristics of the ground types and the effect of the characteristics on the placement of various functions, as well as the space required for drainage when planning space reservations for land use. The student understands the effects of water and its movement on soil. The student knows the most common soil and contaminated soil research methods. The student knows the effects of soil quality on buildability and costs.

AT00CB15 Basics of Building Engineering: 5 ECTS

Learning outcomes

The student understands the whole of the parts of a building and their main functions. The student is familiar with the options for the outer shell, surfaces and non-load-bearing structures as well as the complementary building components. The student understands the most important concepts of fire safety in buildings and the principles of moisture insulation. The student is familiar with the most common markings and permit practices in the construction industry. The student knows the basics of computer-aided designing.

AT00CB16 Basics of Civil Engineering: 5 ECTS

Learning outcomes
The student knows the different elements of the built environment, the related research and how they relate to each other. The student knows the different stages of zoning and understands the importance of zoning as the basis for all construction. The student is familiar with environmental problems and related legislation. The student is able to take into account the principles of sustainable development in the design and implementation of the built environment. The student gets acquainted with BIM + CAD-based design software.

TLTIKKS25KM-1008 Environmental studies: 13 ECTS

AT00BY67 Ecosystems and climate change: 5 ECTS

Learning outcomes
The student:
- knows the key principles on ecosystems and nutrient cycles
- can identify human impacts on ecosystems, in particular the causes and consequences of climate change
- can identify ecosystem services and can consider their social impacts

AT00BY71 Environmental Legislation and Administration: 3 ECTS

Learning outcomes
- Find up-to-date information related to environmental legislation from free and paid information services
- Outline the responsibilities of environmental legislation and various environmental management level tasks
- Apply key laws and regulations of the environmental legislation through practical examples

AT00CP40 Water technology: 5 ECTS

Learning outcomes
The student
- knows the basic principles of sustainable water and energy supply options and the most common technologies involves
- understands the importance of sustainable, safe and economical water and energy supply as part of public service activities
- can identify the effects of climate change on water and energy supply, as well as the effects of energy supply on climate change

- learns teamwork skills, as well as how to search for information about the subject area and to communicate about it

TLTIKKS25KM-1009 Development of residential environments: 15 ECTS

AT00BY84 Development of residential environments: 5 ECTS

Learning outcomes
The student can
- Create a development plan for a residential environment and plan it with the most commonly used building types
- Create a description and illustrations of the environment
- Apply suitable software for the work

AT00BY85 Town planning: 5 ECTS

Learning outcomes
The student can
- structure the different stages of the town planning process
- prepare an urban area development map of the residential area with its provisions, an area development report and prepare
building system instructions for the area
- apply suitable software for the work

AT00BY86 Planning Residential Surroundings: 5 ECTS

Learning outcomes
The student can
- prepare and scale a plan for the surroundings of a residential area
- consider the green environment and handling of rainwater in the area
- apply suitable software for the work

TLTIKKS25KM-1010 Digitalisation in urban planning: 16 ECTS

AT00CP51 Computer Aided design and modelling: 5 ECTS

Learning outcomes
The student is able to:
- identify the potential of computer-aided design
- understand the basics of cad drawing and prepare simple drawings with the aid of the programme's basic functions
- explain the main principles of 3D- and data modelling of the built environment
- identify possible application of different modelling methods in the environmental field

AT00CP52 GIS and digital applications: 5 ECTS

Learning outcomes
The student is able to:
- identify the impacts and opportunities of digitalisation and industry 4.0 in the environmental sector
- understand the main principles of machine learning and programming
- explain applications of spatial data and use the QGIS spatial data programme (or a similar one)
- utilise various environmental databases
- recognise the risks of digitalisation and understand the significance of cyber security

AT00CB35 Building information model: 3 ECTS

Learning outcomes
The student knows the basic concepts of data modelling and the principles of the data model-based construction process, and knows the basic use of data model-based design programs and model review programs.

AT00CU44 Contemporary of Urban planning: 3 ECTS

Learning outcomes
The student is able to:
- acquire information about current themes in urban planning
- organize and compile the acquired information
- use structured information in the produced material

TLTIKKS25KM-1011 Municipality as an Operating Environment: 15 ECTS

AT00BY93 Municipality as an Operating Environment: 5 ECTS

Learning outcomes
The student can
- acquire information on the regional administration reform and understands its impact on the municipalities
- understand the principles of a municipality as an operating environment and the appropriate decision-making principles
- understand starting points for general level planning and knows how to prepare and structure information on and
for master plans
- create development plans based on municipal needs

AT00BY94 Development project of municipality: 10 ECTS

Learning outcomes
The student can
- apply planning software to illustrate structured or created information
- acquire knowledge and create a report for the basis of a development project and make use of geographical data
- observe the site considering the environmental aspects
- prepare development suggestions in a project based on reviews and acquired data

TLTIKKS25KM-1012 Practical Training: 30 ECTS

HA00BU59 Practical Training 1: 10 ECTS

Learning outcomes
The student is able to
- describe work-related phenomena and use related concepts
- act in a productive way, following the practices of the workplace and the ethical principles of the profession
- use the techniques, work methods, models and processes that they have learnt
- act in a customer-oriented way in interactive situations in the workplace and in the cooperation network
- evaluate and develop their own competence int the work done in practical training

HA00BU60 Practical Training 2: 10 ECTS

Learning outcomes
The student is able to
- describe work-related phenomena and use related concepts
- act in a productive way, following the practices of the workplace and the ethical principles of the profession
- use the techniques, work methods, models and processes that they have learnt
- act in a customer-oriented way in interactive situations in the workplace and in the cooperation network
- evaluate and develop their own competence int the work done in practical training

HA00BU61 Practical Training 3: 10 ECTS

Learning outcomes
The student is able to
- describe work-related phenomena and use related concepts
- act in a productive way, following the practices of the workplace and the ethical principles of the profession
- use the techniques, work methods, models and processes that they have learnt
- act in a customer-oriented way in interactive situations in the workplace and in the cooperation network
- evaluate and develop their own competence int the work done in practical training

TLTIKKS25KM-1013 Thesis: 15 ECTS

AO00BU62 Thesis Planning: 5 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

AO00BU63 Thesis Project: 5 ECTS

Learning outcomes
The student is able to:
- implement the thesis on the basis of an approved thesis plan.

AO00BU64 Thesis Report: 5 ECTS

Learning outcomes
The student is able to:
- 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.

TLTIKKS25KM-1014 COMPLEMENTARY COMPETENCE: 60 ECTS

TLTIKKS25KM-1015 Civil engineering: 15 ECTS

TLTIKKS25KM-1016 Construction: 15 ECTS

TLTIKKS25KM-1017 Circular economy, community and mobility: 15 ECTS

TLTIKKS25KM-1018 Urban planning: 15 ECTS

TLTIKKS25KM-1019 Other studies in LAB (i.e. Language and communication): 0 ECTS

AY00CZ42 LAB@key (Bachelor´s Degree): 1 ECTS

Learning outcomes
Student is able to
- use diverce digital tools and learning environments
- evaluate own professional development

TLTIKKS25KM-1020 Other University Level Studies: 0 ECTS

TLTIKKS25KM-1021 Exchange studies: 0 ECTS