

## Curriculum at LAB University of Applied Sciences 2023-2024

### Bachelor of Engineering, Mechanical Engineering 23S, full-time studies, Lappeenranta

Code	Name	1 y	2 y	3 y	4 y	ECTS total
<b>TLPRKONE23S-1014 CORE COMPETENCE</b>						<b>210</b>
<b>TLPRKONE23S-1015 Common Studies</b>						<b>15</b>
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
<b>TLPRKONE23S-1016 Professional Core Competence</b>						<b>150</b>
<b>TLPRKONE23S-1027 Engineering Calculations</b>						<b>27</b>
AT00CX53	Engineering calculation 1	17				17
AT00CX54	Engineering calculation 2		10			10
<b>TLPRKONE23S-1018 Basics of Mechanical Engineering</b>						<b>13</b>
AT00BZ36	Basics of mechanical engineering	5				5
AT00CV78	Manufacturing Technologies 1	5				5
AT00CV82	Construction Materials	3				3
<b>TLPRKONE23S-1019 Engineering Drawing and Modelling</b>						<b>12</b>
AT00CV75	Technical Drawing and Modelling 1	8				8
AT00CV76	Technical Drawing and Modelling 2		4			4
<b>TLPRKONE23S-1020 Yearly Projects</b>						<b>10</b>
AT00CV80	Yearly Project 1	5				5
AT00CV81	Yearly Project 2		5			5
<b>TLPRKONE23S-1021 Machine Parts</b>						<b>14</b>
AT00CV77	Machine Parts		4			4
AT00CV79	Manufacturing Technologies 2		10			10
<b>TLPRKONE23S-1022 Automation</b>						<b>14</b>
AT00CV84	Basics of Hydraulics and Pneumatics		4			4
AT00CY92	Basics of electricity and automation		10			10
<b>TLPRKONE23S-1023 Team Learning</b>						<b>60</b>

AT00CV85	Team Learning 1			30		30
AT00CV86	Team learning 2			30		30
<b>TLPRKONE23S-1024 Practical Training</b>						<b>30</b>
HA00CD55	Practical Training		10			10
HA00BU60	Practical Training 2			10		10
HA00BU61	Practical Training 3				10	10
<b>TLPRKONE23S-1025 Thesis</b>						<b>15</b>
AO00BU62	Thesis Planning				5	5
AO00BU63	Thesis Project				5	5
AO00BU64	Thesis Report				5	5
<b>TLPRKONE23S-1026 COMPLEMENTARY COMPETENCE</b>						<b>30</b>
AT00CV87	Team Learning 3				30	30

## **TLPRKONE23S-1014 CORE COMPETENCE: 210 ECTS**

### **TLPRKONE23S-1015 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 competencies during 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.

### **TLPRKONE23S-1016 Professional Core Competence: 150 ECTS**

### **TLPRKONE23S-1027 Engineering Calculations: 27 ECTS**

### **AT00CX53 Engineering calculation 1: 17 ECTS**

### **AT00CX54 Engineering calculation 2: 10 ECTS**

### **TLPRKONE23S-1018 Basics of Mechanical Engineering: 13 ECTS**

### **AT00BZ36 Basics of mechanical engineering: 5 ECTS**

#### **Learning outcomes**

The student is able to

- work safely in a metal workshop / laboratory
- identify and name the basic components and standard parts of mechanical engineering
- uses tools and measuring instruments
- includes basic terminology related to mechanical engineering.

### **AT00CV78 Manufacturing Technologies 1: 5 ECTS**

#### **Learning outcomes**

The student is able to

- work safely in a metal workshop / laboratory
- identify and name the basic components and standard parts of mechanical engineering
- uses tools and measuring instruments
- includes basic terminology related to mechanical engineering.

### **AT00CV82 Construction Materials: 3 ECTS**

### **TLPRKONE23S-1019 Engineering Drawing and Modelling: 12 ECTS**

#### **Learning outcomes of the study module**

Student

- knows machine design drawing methods and the basics of technical documentation.
- can produce good quality part and assembly drawings
- knows how to use 2D and 3D modeling softwares as design tools.

### **AT00CV75 Technical Drawing and Modelling 1: 8 ECTS**

#### **Learning outcomes**

Student is able to

- create 3D models, parts and assemblies
- interpret drawings
- produces part and assembly drawings in accordance with the ISO standards with projections and sections
- dimension the drawings comprehensibly
- basics of tolerancing and other markings related to drawings

### **AT00CV76 Technical Drawing and Modelling 2: 4 ECTS**

#### **Learning outcomes**

Student

- deepens modeling skills
- deepens drawing skills
- deepens knowledge of tolerances and special markings
- take into account the influence of manufacturing methods on the design

### **TLPRKONE23S-1020 Yearly Projects: 10 ECTS**

#### **Learning outcomes of the study module**

Student

- knows the principles of project work and learns to implement, subdivide, schedule and resource the project
- knows project work tools and software

### **AT00CV80 Yearly Project 1: 5 ECTS**

#### **Learning outcomes**

Student

- can act as part of a team of experts
- the purpose of the team is to simulate real tasks that can be encountered in mechanical engineering
- the topic of the projects varies annually

### **AT00CV81 Yearly Project 2: 5 ECTS**

#### **Learning outcomes**

Student

- can act as part of a team of experts
- the purpose of the team is to simulate real tasks that can be encountered in mechanical engineering
- the topic of the projects varies annually

### **TLPRKONE23S-1021 Machine Parts: 14 ECTS**

### **AT00CV77 Machine Parts: 4 ECTS**

### **AT00CV79 Manufacturing Technologies 2: 10 ECTS**

#### **Learning outcomes**

The student is able to

- understand the principles and methods of the most common welding methods
- can choose the most suitable welding method for the application
- understand the principles and execution methods of the most common plate work methods
- choose suitable plate work methods for the application
- uses concepts and terms related to welding and sheet metal work technology
- understand the principles of machining
- can choose the right cutting method for the piece in basic cases
- recognizes and can name different cutting methods and methods
- uses basic terminology and concepts related to machining.

### **TLPRKONE23S-1022 Automation: 14 ECTS**

### **AT00CV84 Basics of Hydraulics and Pneumatics: 4 ECTS**

#### **Learning outcomes**

The student is able to

- understand the concepts and terminology of pneumatics and hydraulics.
- understand the laws of pneumatics and hydraulics.
- recognize pneumatics and hydraulics components and their operation.
- can design simple pneumatic and hydraulic systems.

### **AT00CY92 Basics of electricity and automation: 10 ECTS**

#### **Learning outcomes**

Student is able to:

- the basics of electricity and automation technology
- how to choose components used in machine automation
- the basics of electrical switchboard manufacturing
- how to program automation devices

### **TLPRKONE23S-1023 Team Learning: 60 ECTS**

**AT00CV85 Team Learning 1: 30 ECTS****AT00CV86 Team learning 2: 30 ECTS****TLPRKONE23S-1024 Practical Training: 30 ECTS****HA00CD55 Practical Training: 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 in 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 in 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 in the work done in practical training

**TLPRKONE23S-1025 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.

**TLPRKONE23S-1026 COMPLEMENTARY COMPETENCE: 30 ECTS****AT00CV87 Team Learning 3: 30 ECTS**