Curriculum at LAB University of Applied Sciences 2019-2020

Bachelor of Engineering, Mechanical Engineering, full-time studies, Lappeenranta

Code Name	ECTS total
KONE19 Bachelor of Engineering, Mechanical Engineering, full-time studies, Lappeenranta	225
KONE19-1001 BASIC STUDIES	123
KONE19-1021 COMMUNICATION	16
KISU0008 Finnish for Professional Development (Technology)	3
KIEN0006 English for Professional Development (Technology)	4
KIRU0001 Swedish at Work (Technology)	2
KRU0054 Public Administration Swedish, Written Skills	0
KRU0055 Public Administration Swedish, Spoken Skills	0
KSU0064 Finnish Communication for Mechanical Engineering	4
KIEN0013 Meetings and Discussions	3
KONE19-1003 MATHEMATICS AND NATURAL SCIENCES	12
KMA0121 Mathematical Tools in Technology	3
KMA0122 Basic Mathematics in Technology	3
KFK0078 Physics	3
KMA0129 Differential Mathematics	3
KONE19-1004 INTRODUCTION INTO ENGINEERING	15
KTE2356 Technology as Learning Environment	5
KTE2070 Technology in Practice	3
KTE2068 Materials' Structure and Properties	3
KTE2067 Technical Measurements	4
KONE19-1005 BASICS OF MECHANICAL ENGINEERING	12
KTE2069 Mechanics	3
KTE2071 Manufacturing Methods	3
KTE0027 Project Engineering	3
KTE2072 Materials in Mechanical Engineering	3
KONE19-1006 BASICS OF DESIGN	15
KTE2073 Structural Mechanics	3
KTE2074 Basics of Mechanical Device and Construction Design	3
KTE2075 Machine Drawing 1	6
KTE2076 Electricity Pneumatics	3

KONE19-1007	PRODUCTION	11
KTE2077	Maintenance	3
KTE2078	Machine Automation	4
KTE2079	Production Technology	4
KONE19-1008	MANUFACTURING	15
KTE2080	Welding and Metal Sheet Technology	5
KTE2081	Machining	3
KTE2082	Electrical Engineering	3
KTE2083	Manufacturing Project	4
KONE19-1009	MECHANICAL ENGINEERING	15
KTE2084	Machine Dynamics	3
KTE2085	Energy Technology	4
KTE2086	Laboratories in Mechanical Engineering	4
KTE2087	Hydraulics	4
KONE19-1010	DESIGN	12
KTE2088	Mechanical Device and Construction Design 1	4
KTE2089	Mechanical Device and Construction Design 2	3
KTE2090	Machine Drawing 2	5
KONE19-1011	PROFESSIONAL STUDIES	30
KONE19-1012	ADVANCED STUDIES IN MECHANICAL ENGINEERING	30
KTE1288	Mechanical Vibrations	3
KTE2091	Product Design and Material's Selection	4
KTE2092	Product Development	4
KTE0696	Maintenance Technology	3
KTE2093	Machine Elements 1	3
KTE2155	Occupational Safety and Labour Law	3
KTE2095	Machine Automation Project	3
KTE2096	Machine Elements 2	3
KTE2097	Industrial Engineering and Management	4
KONE19-1013	COMPLEMENTARY STUDIES	0
KONE19-1014	SPECIALISATION OPTION/ADVANCED PROFESSIONAL STUDIES	20
KONE19-1015	ADVANCED PROFESSIONAL STUDIES IN PRODUCTION AND MAINTENANCE	20
KTE2102	Project Learning in Enterprises 1	10
KTE2103	Project Learning in Enterprises 2	10
KONE19-1016	ADVANCED PROFESSIONAL STUDIES IN PRODUCT AND MACHINE DESIGN	20
KTE2098	Finite Element Method 1	4
KTE2099	Finite Element Method 2	3
KTE2100	Vibration Mechanics	3

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KTE2101	Machine Design	5
KTE1285	Steel Structures	5
KONE19-1017	ELECTIVE STUDIES	7
KMA0069	Introduction to Mathematics	3
KMA0133	Differential Mathematics (LUT)	4
KIVE0002	Russian 1	2
KIVE0004	Russian 2	2
KIRU0008	Swedish Prep Course	3
KONE19-1018	PLACEMENT	30
TEKUHARJ1	Placement 1	15
TEKUHARJ2	Placement 2	15
KONE19-1019	THESIS	15
KTE2382	Thesis Process	3
KTE2383	Thesis Seminars	2
KTE2384	Thesis Implementation and Report	10

KONE19 Bachelor of Engineering, Mechanical Engineering, full-time studies, Lappeenranta: 225 ECTS

KONE19-1001 BASIC STUDIES: 123 ECTS

KONE19-1021 COMMUNICATION: 16 ECTS

KISU0008 Finnish for Professional Development (Technology): 3 ECTS

Learning outcomes

Proficiency level: C2

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

KIEN0006 English for Professional Development (Technology): 4 ECTS

Learning outcomes

Students are able to communicate clearly and effectively in different generic and field-specific work place situations both orally and in writing: find, evaluate and use information effectively and function collaboratively in international working environments.

KIRU0001 Swedish at Work (Technology): 2 ECTS

Learning outcomes

Proficiency level: B1-B2.1

The student is able to read texts related to their own field, discuss the topics of the texts and communicate orally and in writing in various working life situation in Swedish.

The student completes the Public Administration Test in Swedish.

KRU0054 Public Administration Swedish, Written Skills: 0 ECTS

Learning outcomes

The written Swedish language test of public administration is completed during the Swedish Communication at Work course.

KRU0055 Public Administration Swedish, Spoken Skills: 0 ECTS

Learning outcomes

The spoken Swedish language test of public administration is completed during the Swedish Communication at Work course.

KSU0064 Finnish Communication for Mechanical Engineering: 4 ECTS

Learning outcomes

Proficiency level: C2

The student is able to fluently communicate Finnish texts related to their own field orally and in writing.

KIEN0013 Meetings and Discussions: 3 ECTS

Learning outcomes

Students are able to communicate fluently in meetings, negotiations and discussions and they are familiar with meeting documents and proceedings.

KONE19-1003 MATHEMATICS AND NATURAL SCIENCES: 12 ECTS

KMA0121 Mathematical Tools in Technology: 3 ECTS

Learning outcomes

After passing the course, a studentknows geometry and vectors in plane, basics of trigonometry, recognises different polynomial functions and can sketch their graphs,knows methods for solving inequalities and special equations.

KMA0122 Basic Mathematics in Technology: 3 ECTS

Learning outcomes

After passing the course, a studentknows solution method for system of equations and can solve them with mathematical programs,knows basics of geometry and vectors in space and can apply them in professional cases,recognise trigonometric, exponential and logarithmic functions and can solve equations including them,knows basics of derivation.

KFK0078 Physics: 3 ECTS

Learning outcomes

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KMA0129 Differential Mathematics: 3 ECTS

Learning outcomes

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KONE19-1004 INTRODUCTION INTO ENGINEERING: 15 ECTS

KTE2356 Technology as Learning Environment: 5 ECTS

Learning outcomes

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KTE2070 Technology in Practice: 3 ECTS

Learning outcomes

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KTE2068 Materials' Structure and Properties: 3 ECTS

Learning outcomes

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KTE2067 Technical Measurements: 4 ECTS

Learning outcomes

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KONE19-1005 BASICS OF MECHANICAL ENGINEERING: 12 ECTS

KTE2069 Mechanics: 3 ECTS

Learning outcomes

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KTE2071 Manufacturing Methods: 3 ECTS

Learning outcomes .
KTE0027 Project Engineering: 3 ECTS Learning outcomes
KTE2072 Materials in Mechanical Engineering: 3 ECTS
Learning outcomes
KONE19-1006 BASICS OF DESIGN: 15 ECTS
KTE2073 Structural Mechanics: 3 ECTS
Learning outcomes .
KTE2074 Basics of Mechanical Device and Construction Design: 3 ECTS Learning outcomes
KTE2075 Machine Drawing 1: 6 ECTS
Learning outcomes
KTE2076 Electricity Pneumatics: 3 ECTS Learning outcomes
KONE19-1007 PRODUCTION: 11 ECTS
KTE2077 Maintenance: 3 ECTS

Learning outcomes

Learning outcomes KTE2079 Production Technology: 4 ECTS **Learning outcomes KONE19-1008 MANUFACTURING: 15 ECTS** KTE2080 Welding and Metal Sheet Technology: 5 ECTS Learning outcomes KTE2081 Machining: 3 ECTS **Learning outcomes** KTE2082 Electrical Engineering: 3 ECTS Learning outcomes KTE2083 Manufacturing Project: 4 ECTS Learning outcomes **KONE19-1009 MECHANICAL ENGINEERING: 15 ECTS KTE2084 Machine Dynamics: 3 ECTS** Learning outcomes KTE2085 Energy Technology: 4 ECTS Learning outcomes

KTE2078 Machine Automation: 4 ECTS

KTE2086 Laboratories in Mechanical Engineering: 4 ECTS

Learning outcomes

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KTE2087 Hydraulics: 4 ECTS

Learning outcomes

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KONE19-1010 DESIGN: 12 ECTS

KTE2088 Mechanical Device and Construction Design 1: 4 ECTS

Learning outcomes

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KTE2089 Mechanical Device and Construction Design 2: 3 ECTS

Learning outcomes

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KTE2090 Machine Drawing 2: 5 ECTS

Learning outcomes

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KONE19-1011 PROFESSIONAL STUDIES: 30 ECTS

KONE19-1012 ADVANCED STUDIES IN MECHANICAL ENGINEERING: 30 ECTS

KTE1288 Mechanical Vibrations: 3 ECTS

Learning outcomes

On completion of this course, students should understand oscillations and be able to calculate one-degree-of-freedom oscillations.

KTE2091 Product Design and Material's Selection: 4 ECTS

Learning outcomes

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KTE2092 Product Development: 4 ECTS

Learning outcomes

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KTE0696 Maintenance Technology: 3 ECTS

Learning outcomes

On completion of this course, students should be familiar with the reliability of production facilities and ways to improve it: have learned the most common condition monitoring methods: be familiar with the maintenance of the most important process equipment and their components.

KTE2093 Machine Elements 1: 3 ECTS

Learning outcomes

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KTE2155 Occupational Safety and Labour Law: 3 ECTS

Learning outcomes

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KTE2095 Machine Automation Project: 3 ECTS

Learning outcomes

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KTE2096 Machine Elements 2: 3 ECTS

Learning outcomes

KTE2097 Industrial Engineering and Management: 4 ECTS

Learning outcomes

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KONE19-1013 COMPLEMENTARY STUDIES: 0 ECTS

KONE19-1014 SPECIALISATION OPTION/ADVANCED PROFESSIONAL STUDIES: 20 ECTS

KONE19-1015 ADVANCED PROFESSIONAL STUDIES IN PRODUCTION AND MAINTENANCE: 20 ECTS

KTE2102 Project Learning in Enterprises 1: 10 ECTS

Learning outcomes

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KTE2103 Project Learning in Enterprises 2: 10 ECTS

Learning outcomes

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KONE19-1016 ADVANCED PROFESSIONAL STUDIES IN PRODUCT AND MACHINE DESIGN: 20 ECTS

KTE2098 Finite Element Method 1: 4 ECTS

Learning outcomes

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KTE2099 Finite Element Method 2: 3 ECTS

Learning outcomes

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KTE2100 Vibration Mechanics: 3 ECTS

Learning outcomes

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KTE2101 Machine Design: 5 ECTS

Learning outcomes

After the course student:can use PDM-systemunderstands the meaning of tolerances and fits in mechanical engineeringknows basic rules of designing products for manufacturing (DFM)understands basic principles of Machinery Directive and safety

KTE1285 Steel Structures: 5 ECTS

Learning outcomes

On completion of this course, students should have learned the basic skills necessary in the design of the most common load-bearing structures.

KONE19-1017 ELECTIVE STUDIES: 7 ECTS

KMA0069 Introduction to Mathematics: 3 ECTS

Learning outcomes

On completion of this course, students who have completed only comprehensive school should have brushed up their mathematical skills.

KMA0133 Differential Mathematics (LUT): 4 ECTS

Learning outcomes

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KIVE0002 Russian 1: 2 ECTS

Learning outcomes

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KIVE0004 Russian 2: 2 ECTS

Learning outcomes

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KIRU0008 Swedish Prep Course: 3 ECTS

Learning outcomes

Proficiency level: B1

The student is able to speak and write grammatically and phonetically correct Swedish.

KONE19-1018 PLACEMENT: 30 ECTS

TEKUHARJ1 Placement 1: 15 ECTS

Learning outcomes

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TEKUHARJ2 Placement 2: 15 ECTS

Learning outcomes

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KONE19-1019 THESIS: 15 ECTS

KTE2382 Thesis Process: 3 ECTS

Learning outcomes

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KTE2383 Thesis Seminars: 2 ECTS

Learning outcomes

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KTE2384 Thesis Implementation and Report: 10 ECTS

Learning outcomes

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