13.03.2025

Curriculum at LAB University of Applied Sciences
2025-2026

Bachelor of Engineering, Wood Technology 25S, Double Degree, Lahti

Code	Name	1 y	ECTS total
TLTIWOODDD25S-1001	**Professional Core Competences**		**30**
TLTIWOODDD25S-1009	**Wood-based Panels Industry**		**15**
AT00BZ12	Plywood and LVL technology	5	5
AT00BZ13	Particle board, MDF, OSB and other wood-based panels	5	5
AT00BZ14	R&D Project	5	5
TLTIWOODDD25S-1013	**Wood product industry**		**15**
AT00BZ24	Wood products in building industry	5	5
AT00CU23	Global wood business	5	5
AT00CU24	Wood architecture	5	5
TLTIWOODDD25S-1010	**Sustainable energy management**		**15**
AT00BY81	Energy efficiency	5	5
AT00BY82	Renewable Energy Forms	5	5
AT00BY83	Sustainable Resource Efficiency Project	5	5
TLTIWOODDD25S-1011	**Introduction to Sustainable Solutions Engineering**		**15**
AT00CH98	Climate Change and Sustainability	5	5
AT00DE62	Environmental Cycles and Sustainable Bioeconomy	5	5
AT00DE78	Technical Cycles	5	5
TLTIWOODDD25S-1012	**Sustainable Material Management**		**5**
AT00DE81	Sustainable Life Cycle of Product	5	5
TLTIWOODDD25S-1004	**Complementary Competences**		**5**
TLTIWOODDD25S-1015	**Virtual Wood University**		**5**
AT00CM09	Carbon footprint of wood products	2	2
AT00CP64	Circular Economy of Forest Products	3	3
AT00CY87	CLT & LVL	2	2
AT00CP67	Consumer Behavior and CLT	3	3
AT00CY89	Entrepreneurship in the forest products sector	3	3
AT00CU52	From Europe into the world	5	5
AT00CY82	From the Forest to the final Market	5	5
AT00CM11	International Timber Trade 1	2	2
AT00CP66	International Timber Trade 2	3	3
AT00CU50	The Future Outlook of Woodproducts	5	5

AT00CU51	Using all your senses in wood marketing	5	5
AT00CP65	Wood Industry Comparison	3	3
AT00CU53	Wood in buildings	5	5
TLTIWOODDD25S-1006	**Practical Training**		**10**
HA00CE82	Practical Training	10	10
TLTIWOODDD25S-1007	**Thesis**		**15**
AO00CE85	Thesis Planning	5	5
AO00CE86	Thesis Research and Writing	5	5
AO00CE87	Thesis Publication	5	5

TLTIWOODDD25S-1001 Professional Core Competences: 30 ECTS

TLTIWOODDD25S-1009 Wood-based Panels Industry: 15 ECTS

AT00BZ12 Plywood and LVL technology: 5 ECTS

Learning outcomes
The student is able to
- describe the manufacturing processes of plywood and LVL board products
- know the main end uses of both board type
- define the technical properties of both board types
- know the further processing possibilities of both board types
- produce plywood in laboratory environment and make standard quality tests

AT00BZ13 Particle board, MDF, OSB and other wood-based panels: 5 ECTS

Learning outcomes
The student is able to
- describe the manufacturing processes of particleboard, MDF and OSB board products
- know the main end uses of each board type
- define the technical properties of different board types
- know the further processing possibilities of different board types
- produce particleboard in laboratory environment and make standard quality tests

AT00BZ14 R&D Project: 5 ECTS

Learning outcomes
The student is able to:
- make a project plan including time schedule, responsibilities and target setting
- learn customer communication
- search for professional literature to support the project
- report on the project results and analyse them
- make seminar presentation to customer

TLTIWOODDD25S-1013 Wood product industry: 15 ECTS

AT00BZ24 Wood products in building industry: 5 ECTS

Learning outcomes
The student is able to
- know the possibilities and limitations of LVL for building industry
- know the possibilities and limitations of plywood for building industry
- know the possibilities and limitations of CLT for building industry
- know the possibilities and limitations of gluelam for building industry
- overview of other Wood Products used in construction
- describe key production equipment and functions for different applications

AT00CU23 Global wood business: 5 ECTS

Learning outcomes
Student understands
- the global nature of modern wood products business.
- the combination of local nature of production through raw materials against varying demands in different parts of the globe
- competitive product and service offerings
- logistic options and challenges
- future trends and possibilities for the industry

AT00CU24 Wood architecture: 5 ECTS

Learning outcomes
The student is able to
- history of wood in architecture
- regional differences
- future vision for use of wood and other natural material in architecture

TLTIWOODDD25S-1010 Sustainable energy management: 15 ECTS

AT00BY81 Energy efficiency: 5 ECTS

Learning outcomes
The student is able to
- identify the main aspects of the different stages of the energy chain (acquisition, production and consumption)
- regognize different methods and technologies to promote energy efficiency and security of supply, and knows their significance at the local and global level
- describe the role of digitalisation as part of energy efficient solutions now and in the future
- utilise different tools when assessing and comparing energy efficiency and more sustainable energy forms, for example in energy consulting

Prerequisites
Basics of Physics

AT00BY82 Renewable Energy Forms: 5 ECTS

Learning outcomes
The student is able to
- describe how different forms of renewable energy are generated and the targets set for their increased use
- regognize the main concepts connected with decentralized energy production and the related targets
- compare the environmental and cost impacts of different forms of energy and to evaluate their suitability for different uses

AT00BY83 Sustainable Resource Efficiency Project: 5 ECTS

Learning outcomes
The student is able to
- describe how to search and apply information required to carry out resource efficiency and water management -related projects
- choose the most suitable methods to perform different energy-related assignments
- act as a responsible member of a team, and to present and report on a project according to the University reporting guidelines

TLTIWOODDD25S-1011 Introduction to Sustainable Solutions Engineering: 15 ECTS

AT00CH98 Climate Change and Sustainability: 5 ECTS

Learning outcomes
The student is able to
- explain key environmental cycles and assess bioeconomy strategies for sustainability
- describe the greenhouse effect and evaluate its role and impact on climate change
- summarize the history and impacts of climate change on human and ecological systems
- assess the environmental impacts of natural resource use and propose sustainable alternatives
- understand and apply strategies for carbon capture, storage, and climate adaptation across sectors
- understand how, especially SDGs 6,7,12,13 & 15, are linked to the course´s themes to promote more sustainable solutions

AT00DE62 Environmental Cycles and Sustainable Bioeconomy: 5 ECTS

Learning outcomes
The student is able to
- explain critical environmental cycles (carbon, nutrient, water, air) and assess their roles in planetary sustainability
- evaluate the importance of biodiversity and ecosystem services in supporting life and resilience
- explain human impacts on environmental cycles
- understand climate feedback loops and how changes in one cycle affect others
- know circular bioeconomy principles and sustainability metrics to support ecological resilience and

carbon sequestration
- understand how, especially SDGs 6, 12, 13,14 & 15, are linked to the course´s themes to promote more sustainable solutions

AT00DE78 Technical Cycles: 5 ECTS

Learning outcomes
The student is able to
- explain the role of technical and material cycles in supporting a circular economy
- evaluate responsible production and consumption practices for resources
- assess the impacts of sustainable and non-sustainable production on issues like pollution, climate change, and resource and nature depletion
- apply principles of circular economy to product and process design, with examples of circular models
- identify key policies and regulations that drive circular business development in various industries
- understand how, especially SDGs 9,12,13 & 15, are linked to the course´s themes to promote more sustainable solutions

TLTIWOODDD25S-1012 Sustainable Material Management: 5 ECTS

AT00DE81 Sustainable Life Cycle of Product: 5 ECTS

Learning outcomes
The student is able to
- perform Life Cycle Assessment (LCA) calculations to evaluate the environmental impact of products
- understand and apply the basic principles of various LCA calculation tools
- use ISO 14040 standards to guide and structure LCA processes
- calculate and interpret carbon and material footprints as part of sustainability assessments
- present and analyse LCA results
- understand how, especially SDGs 9, 12, 13 & 15, are linked to the course´s themes to promote more sustainable solutions

TLTIWOODDD25S-1004 Complementary Competences: 5 ECTS

Learning outcomes of the study module
Virtual Wood University course

TLTIWOODDD25S-1015 : 5 ECTS

AT00CM09 Carbon footprint of wood products: 2 ECTS

Learning outcomes
Student will learn:
- Terms Carbon footprint and carbon storage and their application to wood products
- The role of wood material in environmental questions why wood materials can be a better solution for environmental problems

- Meaning of Environmental Product Declaration and basic principles of carbon footprint calculation

AT00CP64 Circular Economy of Forest Products: 3 ECTS

AT00CY87 CLT & LVL: 2 ECTS

Learning outcomes
Student will learn:
- CLT/Glulam/LVL products
- Production processes
- The applications of different products

AT00CP67 Consumer Behavior and CLT: 3 ECTS

AT00CY89 Entrepreneurship in the forest products sector: 3 ECTS

Learning outcomes
Student will learn:
- Principles and Practice of Entrepreneurship in the forest products sector
- The future of Entrepreneurship in the forest products sector

AT00CU52 From Europe into the world: 5 ECTS

AT00CY82 From the Forest to the final Market: 5 ECTS

AT00CM11 International Timber Trade 1: 2 ECTS

Learning outcomes
Student will learn:
- Principles and Practice of International Wood Marketing
- The Legal environment of International Timber Trade
- The Export and Import order process in Wooden Businesses

AT00CP66 International Timber Trade 2: 3 ECTS

AT00CU50 The Future Outlook of Woodproducts: 5 ECTS

AT00CU51 Using all your senses in wood marketing: 5 ECTS

AT00CP65 Wood Industry Comparison: 3 ECTS

AT00CU53 Wood in buildings: 5 ECTS

TLTIWOODDD25S-1006 Practical Training: 10 ECTS

HA00CE82 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 int the work done in practical training

TLTIWOODDD25S-1007 Thesis: 15 ECTS

AO00CE85 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.

AO00CE86 Thesis Research and Writing: 5 ECTS

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

AO00CE87 Thesis Publication: 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.