05.01.2022

Curriculum at LAB University of Applied Sciences
2022-2023

Master of Engineering, Urban Climate and Sustainability (MurCS) 22K, Lahti

Code	Name	1 y	ECTS total
YMUR22KLTI-1001	**CORE COMPETENCE**		**60**
YMUR22KLTI-1002	**Advanced Professional Studies**		**30**
YMUR22KLTI-1003	**Professional Studies**		**20**
TE00BS48	Urban and Interactive Planning	8	8
YT00CQ73	Urban ecosystems and Nature-based solutions	7	7
TE00BS56	Societal Change and Future Foresight Methods	7	7
TE00BS57	Climatology	7	7
TE00BS58	Climate change in urban enviroment	8	8
YMUR22KLTI-1004	**Elective Studies**		**10**
TE00BS54	Circular Economy	8	8
TE00BS51	Responsible Business	8	8
YMUR22KLTI-1005	**Thesis**		**30**
YO00CF53	Thesis Planning		0
YO00CF54	Thesis Project and Reporting		0

YMUR22KLTI-1001 CORE COMPETENCE: 60 ECTS

YMUR22KLTI-1002 Advanced Professional Studies: 30 ECTS

YMUR22KLTI-1003 Professional Studies: 20 ECTS

TE00BS48 Urban and Interactive Planning: 8 ECTS

Learning outcomes
On completion of this module the student should be able to:

- Understand the main features of urban history and its impacts in contemporary envi-ronment as well as understand the key elements of local identity
- Critically analyze and discuss contemporary phenomena like urbanization and ur-ban sprawl, transitions in urban areas and collaboration of professionals and stake-holders
- Evaluate recent urban development and planning processes and their management
- Discuss and apply key methodologies of public participation in the planning and de-velopment processes
- Develop applications from theoretical background into practical situations

YT00CQ73 Urban ecosystems and Nature-based solutions: 7 ECTS

Learning outcomes
On completion of this module the student should be able to:

- Critically evaluate the key principles dealing with urban ecosystems thinking and ecosystem services
- Understand the need of urban ecosystem research and green infrastructure in cities
- Display a knowledge and understanding of advanced methodologies relating to ecosystems services, landscape planning and geoengineering
- Critically appraise adaptation of theoretical principles in practical situations in differ-ent circumstances
- Discuss and apply key management methodologies on landscape planning and green infrastructure in cities
- Analyse and discuss best practices for management of urban green and blue areas

TE00BS56 Societal Change and Future Foresight Methods: 7 ECTS

Learning outcomes
On completion of this module the student should be able to:

- Critically evaluate the key principles dealing with the field of futures research
- Understand the need of analysis of societal changes and transition processes in po-litical, economical, social, technological fields as the base for the futures research approach
- Display a knowledge and understanding of advanced methodologies relating to fu-tures research
- Critically appraise the differences within the most common approaches in the field
- Discuss and apply key management methodologies on different case studies
- Analyse and discuss best practices for different research and development tasks

TE00BS57 Climatology: 7 ECTS

Learning outcomes
On successful completion of this module the student should be able to:

- Understand how the interplay of solar radiation, Earth characteristics, and astronomical factors determines the
surface-atmosphere energy balance and the Earth climate distribution.
- Understand how dry air thermodynamics explains the concept of atmospheric stability and its consequences.
- Understand water phase change phenomena and their implications in the atmospheric energy balance.
- Understand the forces that guide the direction and speed of winds in local and global scales.
- Understand the physical aspects that drive climate change

TE00BS58 Climate change in urban enviroment: 8 ECTS

Learning outcomes

On successful completion of this module students should be able to:

- Demonstrate awareness and understanding of atmospheric physical, thermodynamics, dynamic processes and evolving
weather in a climatic context.
- Critically appraise the coupling of urban environment to meteorological-climate, atmospheric stability.
- Demonstrate knowledge and understanding of model outputs and interpretation.
- Identify and critically evaluate the nature, causes and implications of extreme events.
- Identify and critically evaluate the effects of climate change in urban environments .
- Demonstrate technical ability in analytical methods in the evaluation of climate change mitigation/adaptation strategies.

YMUR22KLTI-1004 Elective Studies: 10 ECTS

Courses included in the study module
GIS as a tool
Climate change and its environmental impacts

TE00BS54 Circular Economy: 8 ECTS

Learning outcomes
The student
- is able to describe the main principles of circular economy and identifyies the importance of resource efficiency as a part of the concept of circular economy
- is able to demonstrate the life cycle analysis and its principles
- is able to evaluate the environmental impacts of products and processes during their life cycle and develops opportunities to decrease them
- is able to analyse and identify means to improve material and energy efficiency in different environments and urban areas

TE00BS51 Responsible Business: 8 ECTS

Learning outcomes
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The student
- understands the role of economic, social and environmental responsibility as an integrated part of the corporate strategy and everyday business
- is able to evaluate and analyze environmental and social performance of companies
- is able to determine different standards, certificates and labels concerning CSR and their role in company communication
- is familiar with the basic idea of environmental management and knows how to use it in strategic decision making

YMUR22KLTI-1005 Thesis: 30 ECTS

YO00CF53 Thesis Planning: 10 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.

YO00CF54 Thesis Project and Reporting: 20 ECTS

Learning outcomes
The student is able to
- 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.
- as a maturity test, write a blog post, a press release or an article.