

Study regulations of the Master's course

Energy & Sustainability Management

To obtain the academic degree

Master of Arts in Business,
abbreviated MA

as an appendix to the statutes of the
HOK | University of Applied Sciences Kufstein Tirol

Organizational form: full-time & part-time

Duration: 4 semesters

Scope: 120 ECTS

Places for beginners per academic year: 21 full-time
20 part-time

Version 1

Adopted by the Faculty on June 24, 2026
Program starts WS 2027/28

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1 OCCUPATIONAL PROFILES

1.1 Career opportunities

Energy Trading: With the global expansion of renewable energy, energy markets are undergoing fundamental changes. International cooperation, electricity trading platforms, and cross-border supply systems are gaining in importance. Graduates analyze market mechanisms, develop strategies for integrating renewable energy into international energy markets, and contribute to the stabilization of energy systems. The focus is on the interplay between climate protection, system efficiency, and security of supply. In doing so, graduates address key building blocks for a resilient energy future.

Sales & Product Management for Energy & Circular Economy: Graduates shape transformation processes in international companies, organizations, and institutions. They develop strategies for energy-efficient and circular economic systems geared toward long-term availability and the minimization of resource use. This includes tasks such as developing guidelines, implementing EU-wide or global energy projects, and evaluating supply chains with a view to responsible resource management.

Consulting and Management in Energy, Resilience, and the Circular Economy: Companies and public institutions are increasingly faced with the challenge of making their energy and material flows resilient. Graduates advise organizations on how to minimize risks, reduce dependencies, and implement circular value creation models. They conduct analyses of energy and material flows, develop concepts for the reuse of resources, and support projects aimed at closing material loops. In doing so, they take into account international standards, legal frameworks, and technical innovations to create robust, adaptable solutions.

Consulting and Management for Municipal and Regional Transformation Processes: New structures for energy supply, mobility, and the circular economy are emerging in cities and regions. Graduates design regional energy and resource strategies, develop measures to strengthen local resilience, and support international model projects. They work on solutions for low-emission heating and cooling networks, energy communities, sustainable urban development, and smart infrastructure. Their expertise is in high demand in municipal administrations, energy agencies, planning offices, and international regional development networks.

Project Management for Renewable Energy and Resilient Systems: A key area of focus is international project management. Graduates plan, coordinate, and evaluate projects in the fields of renewable energy, energy efficiency, and the circular economy. Their responsibilities include site analyses, technological assessments, and the coordination of interdisciplinary teams. They ensure that projects are environmentally sustainable, economically viable, and socially acceptable. Particular emphasis is placed on developing resilient infrastructure that can withstand crises and ensure security of supply even in volatile markets.

Employment opportunities for graduates in the following sectors:

- **Energy utilities, grid and system operators, and energy trading companies**
 - Roles in market analysis, trading and portfolio strategy, flexibility and balancing group management, and regulatory and platform contexts
 - Roles such as energy trader, market design specialist, portfolio/risk manager, and strategist for energy markets and system integration.
- **Industrial and large corporations with high energy and resource requirements**

- Management of decarbonization, energy efficiency, electrification, and process and material cycles; development of company-wide transformation programs and resilience-oriented supply chains
- Roles, e.g., Head/Manager of Energy & Sustainability, Circular Economy Lead, Transformation Manager, Supply Chain Sustainability Manager.
- **Service Sector and Infrastructure Operators**
 - Energy and sustainability management in complex operational environments (mobility, logistics, retail, tourism, media, healthcare, and educational real estate); strategic and project leadership for resilient, low-emission infrastructure
 - Roles include, for example, Sustainability/Energy Systems Manager, Infrastructure Resilience Manager, Program Manager for Energy and Resource Transition
- **Consulting, Audit, and Engineering Firms**
 - Strategy consulting and implementation related to energy trading, resilience, the circular economy, ESG compliance, and climate transformation; conducting system, risk, and scenario analyses as well as due diligence
 - Roles, e.g., Senior Consultant for Energy/Sustainability, Resilience & Circular Economy Manager, ESG/Climate Strategy Lead, Sustainability Assurance Manager.
- **Public sector, energy agencies, and international organizations**
 - Design and management of municipal and regional energy and resource strategies, heating and cooling networks, energy communities, and funding and governance programs
 - Roles such as Regional Energy Transition Manager, Head of Municipal Energy and Climate Protection Management, Energy Transition Policy/Program Manager, International Projects Coordinator
- **Financial, investment, and funding institutions with a focus on energy and ESG**
 - Evaluation, structuring, and management of investments in renewables, energy efficiency, grids, storage, and circular infrastructure; risk, impact, and sustainable finance analyses
 - Roles such as: Sustainable Investment Manager, ESG/Climate Risk Lead, Impact Analyst for Energy Projects, Renewables Portfolio Manager
- **CleanTech and innovation companies, startups, and technology providers**
 - Development, scaling, and marketing of energy- and circular-economy-oriented products, platforms, and services; business development and international market entry
 - Roles, e.g., Product/Business Development Manager for Clean Energy/Circular, Go-to-Market Lead, Innovation Manager for Energy Resilience, Strategic Partnerships Manager

1.2 Qualification profile

The qualification objectives and learning outcomes of the master's program [Topic] correspond to both academic and professional requirements and to ISCED Level 0788 (International Standard Classification of Education). The content taught qualifies graduates for the professional fields of activity mentioned in previous chapters.

Professional Field	Responsibilities	Competency Description	Competency Mapping	Curriculum Modules
Energy Trading	Analyze energy markets, price formation, and develop trading and risk strategies	Ability to conduct a technically sound analysis of market mechanisms, pricing models, and trading products, as well as to assess risks	Technical and Academic Competence	vzM: Energy Market, Trading & Risk Management; Data Analytics & Modeling; Innovative Energy Concepts bbM: Energy Markets, Trading & Risk Management; Data Analytics & Modeling; Innovative Energy Concepts
Sales & Product Management for the Energy & Circular Economy	Development of sustainable products, evaluation of value chains, design of circular business models	Ability to design sustainable energy and circular economy products, analyze markets, and systematically implement innovations	Technical and scientific expertise	vzM: Circular Economy, Bioeconomy, and Regenerative Systems; Innovation Management; Applied Technologies & Innovations bbM: Circular Economy, Bioeconomy & Regenerative Systems; Innovation Management; Applied Technologies & Innovations
Consulting & Management in the Fields of Energy, Resilience, and the Circular Economy	Analysis of energy and material flows, assessment of sustainability and resilience, development of circular strategies	Ability to scientifically analyze energy and material flows, risks, and sustainability criteria and to derive robust recommendations for action	Technical and scientific expertise	vzM: Sustainability, Governance & Risk Management; Climate Adaptation & Resilience Management Compendium bbM: Sustainability, Governance & Risk Management; Climate Adaptation & Resilience Management; Compendium
Consulting & Management for Municipal & Regional Transformation Processes	Development of regional energy, mobility, and urban development concepts; support for transformation projects	Ability to analyze complex regional energy systems, plan sustainable mobility and urban development concepts, and provide strategic support for transformation processes	Technical and scientific expertise	vzM: Smart Cities & Communities; Innovative Mobility Concepts; International Urban & Community Development Project bbM: Smart Cities & Regions; Innovative Mobility Concepts;

				International Urban & Regional Development Project
Project Management for Renewable Energy & Resilient Systems	Planning, management, and evaluation of technical energy and innovation projects; coordination of interdisciplinary teams	Ability to plan projects in a structured manner, coordinate teams, and integrate complex technical, environmental, and economic requirements	Interpersonal & Social Skills	vzM: Advanced Project Management & Design Thinking Applied Lab; Collaboration & Interpersonal Skills bbM: Advanced Project Management & Design Thinking; Applied Lab; Collaboration & Interpersonal Skills

2 CURRICULUM

2.1 Curriculum data

	FT	PT	Comments (if any)
First Year of Study (YYYY/MM ₊₁)	2027/28	2027/28	
Standard duration of study (Number of semesters)	4	4	
SWS (Total for all semesters)	53	53	
ASWS (Total for all semesters)	55	55	
ECTS (Total for all semesters)	120	120	
Winter Semester Start (Date, Note: possibly calendar week)	Calendar Week 40	Calendar Week 40	
Winter Semester End (Date, Note: possibly calendar week)	Calendar Week 5	Week 5	
Start of summer semester (Date, Note: possibly calendar week)	Week 11	Week 11	
Summer Semester End (Date, Note: possibly calendar week)	Calendar Week 28	Week 28	
Winter Semester Weeks	15	15	
SS Weeks	15	15	
Mandatory semester abroad (Semester)	/	/	
Language of Instruction (Specify)	English	German	
Professional Internship (Semester, duration in hours)	/	/	

2.2 Curriculum matrix

2.2.1 Curriculum matrix full-time

1. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
ATP	Advanced Project Management & Design Thinking	ILV	X	X	2.5	1	2.5	37.5	ATP	5
CIS	Collaboration & Interpersonal Skills	ILV		X	1	1	1	15	CIS	1
COM.1	Compendium Energy Systems & Technologies	ILV	X	X	2.5	1	2.5	37.5	COM	5
COM.2	Compendium: Sustainability, Transformation and Resilience	ILV		X	2.5	1	2.5	37.5	COM	5
EMT.1	Energy Market, Trading & Risk Management 1	ILV		X	2.5	1	2.5	37.5	EMT	5
LAB.1	Applied Lab 1	PT	X	X	1	1	1	15	LAB	2
LAW.1	European & International Law 1	ILV		X	1	1	1	15	LAW	2
SCO.1	Strategic Communication for Innovation & Adaptation	ILV		X	2.5	1	2.5	37.5	SCO	5
Total line:					15.5		15.5	232.5		30
Course hours = Total WSH x course weeks					232.5					

2. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
CIR	Circular Economy, Bioeconomy and Regenerative Systems	ILV		X	2	1	2	30	CIR	4
DAT	Data Analytics & Modeling	ILV	X	X	2	1	2	30	DAT	4
EMT.2	Energy Market, Trading & Risk Management 2	ILV		X	2	1	2	30	EMT	4
INM	Innovation Management	ILV	X	X	2	1	2	30	INM	4
LAB.2	Applied Lab 2	PT	X	X	1	1	1	15	LAB	2
LAW.2	European & International Law 2	ILV		X	2.5	1	2.5	37.5	LAW	4
SCC	Smart Cities & Communities	ILV	X	X	2	1	2	30	SCC	4
SCI.1	Scientific Communication	ILV		X	1	1	1	15	SCI	2
SCI.2	Master Research Seminar 1 - Research Orientation	SE		X	1	1	1	15	SCI	2
Total line:					15.5		15.5	232.5		30
Course hours = Total WSH x course weeks					232.5					

3. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
BPR	Business Project	PT		X	2	1	2	30	BPR	4
CAR	Climate Adaptation & Resilience Management	ILV		X	2	1	2	30	CAR	4
ECO	Innovative Energy Concepts	ILV	X	X	2	1	2	30	ECO	4
INW	International Urban & Community Development Project	SE	X	X	2	2	4	60	INW	2
MED	Collaborative Leadership & Mediation	ILV		X	2.5	1	2.5	37.5	MED	3
MOB	Innovative Mobility Concepts	ILV	X	X	1.5	1	1.5	22.5	MOB	3
SBD	Integrated Building Design & Energy Simulation	ILV	X	X	2.5	1	2.5	37.5	SBD	4
SCI.3	Master Research Seminar 2 - Research Design & Methodology	SE		X	1	1	1	15	SCI	2
SGR	Sustainability, Governance & Risk Controlling	ILV		X	2	1	2	30	SGR	4
Total line:					17.5		19.5	292.5		30
Course hours = Total WSH x course weeks					262.5					

4. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
IBR	Innovation, Business & Research Transfer	ILV	X	X	1.5	1	1.5	22.5	IBR	3
SCI.4	Master's Thesis Colloquium - Preparation for Publication & Defense	SE		X	1	1	1	15	SCI	2
SCI.5	Master's Thesis	ILV		X	0	1	0	0	SCI	22*
STP	Study Trip & International Experience	ILV		X	2	1	2	30	STP	3
Total line:					4.5		4.5	67.5		30
Course hours = Total WSH x course weeks					67.5					

* The 22 ECTS credits for the master's thesis are divided into 20 ECTS credits for the thesis itself and 2 ECTS credits for the final oral examination.

Abbreviations	
E	Lecture in English language
ECTS	ECTS – Credit points
LV	Course
LVS	Course hour(s)
WSH	Weekly semester hour(s)
T	Lecture with technical background
WP	Elective subject

Summary curriculum data

Description	WSH	ASWS	ALVS	ECTS
Total number of courses over all semesters	53	55	825	120
Total number of courses in 1st year of study	31	31	465	60
Total number of courses in 2nd year of study	22	24	360	60
Total number of courses in 3rd year of study				
Total number of technical events over all semesters	22.5			42
Percentage of technical courses over all semesters based on WSH / ECTS	42.45 %			35 %
Total number of specialized courses in English over all semesters	53			120
Proportion of specialized courses in English over all semesters (Calculation excluding language courses)	100 %			100 %

2.2.2 Curriculum matrix part-time

1. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
ATP	Advanced Project Management & Design Thinking (E)	ILV	X	X	2.5	1	2.5	37.5	ATP	5
CIS	Collaboration & Interpersonal Skills (E)	ILV		X	1	1	1	15	CIS	1
COM.1	Compendium of Energy Systems & Technologies	ILV	X		2.5	1	2.5	37.5	COM	5
COM.2	Compendium of Sustainability, Transformation and Resilience	ILV			2.5	1	2.5	37.5	COM	5
EMT.1	Energy Economics, Market Mechanisms & Risk Management 1	ILV			2.5	1	2.5	37.5	EMT	5
LAB.1	Applied Lab 1	PT	X		1	1	1	15	LAB	2
SCI.1	Scientific Communication (E)	ILV		X	1	1	1	15	SCI	2
SCO	Strategic Communication for Resilience & Innovation	ILV			2.5	1	2.5	37.5	SCO	5
Total line:					15.5		15.5	232.5		30
Course hours = Total WSH x course weeks					232.5					

2. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
CIR	Circular Economy, Bioeconomy and Regenerative Systems	ILV			2.5	1	2.5	37.5	CIR	5
DAT	Data Analytics & Modeling (E)	ILV	X	X	2	1	2	30	DAT	4
EMT.2	Energy Economics, Market Mechanisms & Risk Management 2	ILV			2.5	1	2.5	37.5	EMT	5
INM	Innovation Management	ILV	X		2	1	2	30	INM	4
LAB.2	Applied Lab 2	PT	X		1	1	1	15	LAB	2
MED	Collaborative Leadership & Mediation (E)	ILV		X	2.5	1	2.5	37.5	MED	3
SCI.2	Master's Research Seminar 1 - Research Question	SE			1	1	1	15	SCI	3
SCR	Smart Cities & Regions	ILV	X		2	1	2	30	SCO	4
Total line:					15.5		15.5	232.5		30
Course hours = Total WSH x course weeks					232.5					

3. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
CAR	System Resilience & Climate Adaptation Strategies	ILV			2	1	2	30	CAR	4
IEK	Innovative Energy Concepts	ILV	X		2	1	2	30	IEK	4
INW	International Urban & Community Development Project (E)	PT	X	X	2	2	4	60	INW	2
LAB.3	Applied Lab 3	PT			1	1	1	15	LAB	2
LAW	Energy & Environmental Law	ILV			3	1	3	45	LAW	4
MOB	Innovative Mobility Concepts	ILV	X		1.5	1	1.5	22.5	MOB	3
SBD	Integrated Building Design & Energy Simulation	ILV	X		2.5	1	2.5	37.5	SBD	5
SCI.3	Master's Research Seminar 2 - Research Design & Methodology	SE			1	1	1	15	SCI	1
SGR	Sustainability, Governance & Risk Controlling	ILV			2.5	1	2.5	37.5	SGR	5
Total line:					17.5		19.5	292.5		30
Course hours = Total WSH x course weeks					262.5					

4. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
IBR	Innovation, Business & Research Transfer	ILV	X		1.5	1	1.5	22.5	IBR	3
SCI	Colloquium on the Master's Thesis - Preparation for Publication & Defense	SE			1	1	1	15	SCI	2
SCI.5	Master's Thesis	ILV			0	1	0	0	SCI	22*
STP	Study Trip & International Experience (E)	ILV		X	2	1	2	30	STP	3
Total line:					4.5		4.5	67.5		30
Course hours = Total WSH x course weeks					67.5					

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Summary curriculum data

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Total number of courses in 2nd year of study	22	24	360	60
Total number of courses in 3rd year of study				
Total number of technical events over all semesters	22.5			43
Percentage of technical courses over all semesters based on WSH / ECTS	42.45 %			35.83 %
Total number of specialized courses in English over all semesters	13			20
Proportion of specialized courses in English over all semesters (Calculation excluding language courses)	24.53 %			16.67 %

2.3 Modularization

2.3.1 Module descriptions full-time

Module number:	Advanced Project Management & Design Thinking	Scope:	
ATP		5	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	1. Semester		
Level	1. Semester: Advanced		
Previous knowledge	1. Semester: Basics of project management		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Advanced Project Management & Design Thinking /ILV / LV-Nr: ATP / 1.Semester / ECTS: 5</u> - Kuster, J., Bachmann, C., Hubmann, M., Lippmann, R., & Schneider, P. (2023). Project management handbook: Agile - traditional - hybrid (Second edition). Springer. - Lock, D. (2018). Project management (Seventh edition). Routledge, Taylor & Francis Group.		
Acquisition of skills	<u>Advanced Project Management & Design Thinking /ILV / LV-Nr: ATP / 1.Semester / ECTS: 5</u> The participants: • analyze complex project structures in energy & sustainability management and derive from them critical success factors as well as risks for different stakeholder groups. • evaluate advanced project management methods (agile–hybrid–classic) with regard to their suitability for various FM/RE use cases and structure project-relevant decision-making processes. • design iterative innovation processes based on the design thinking model and develop user-centered solution approaches for complex problems in energy & sustainability management. • critically reflect on their own project and innovation activities and derive improvement strategies to enhance team performance, user orientation and solution quality.		
Course contents	<u>Advanced Project Management & Design Thinking /ILV / LV-Nr: ATP / 1.Semester / ECTS: 5</u> - Hybrid and agile project management frameworks - Stakeholder, risk and complexity analysis in energy & sustainability management - Design thinking & user research in energy & sustainability management with personas, customer journeys, service blueprints - Rapid prototyping for products, service and process innovations		
Teaching and learning methods	<u>Advanced Project Management & Design Thinking /ILV / LV-Nr: ATP / 1.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Advanced Project Management & Design Thinking /ILV / LV-Nr: ATP / 1.Semester / ECTS: 5</u> Portfolio assessment		

Module number:	Collaboration & Interpersonal Skills	Scope:	
CIS		1	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	1. Semester		
Level	1. Semester: Advanced		
Previous knowledge	1. Semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Collaboration & Interpersonal Skills /ILV / LV-Nr: CIS / 1.Semester / ECTS: 1</u> - Bender, F. (2022). A Roadmap to Intercultural Proficiency: Navigating Through Cultural Diversity and Inclusion. Springer International Publishing. https://doi.org/10.1007/978-3-031-04899-9 - Moussa, M., Doumani, T., McMurray, A., Muenjohn, N., & Deng, L. (2022). Cross-Cultural Performance Management: Transcending Theory to a Practical Framework. Springer International Publishing. https://doi.org/10.1007/978-3-030-91268-0 - Schauer, G. A. (2024). Intercultural Competence and Pragmatics. Springer International Publishing. https://doi.org/10.1007/978-3-031-44472-2 - Stolz, I., & Oldenziel Scherrer, S. (Eds). (2022). International Leadership: Effecting Success Across Borders in a Boundaryless World. Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-37306-1		
Acquisition of skills	<u>Collaboration & Interpersonal Skills /ILV / LV-Nr: CIS / 1.Semester / ECTS: 1</u> The participants: • actively shape the formation of well-functioning student teams and take responsibility for shared tasks. • apply fundamental communication and feedback techniques in order to interact with one another respectfully and in a solution-oriented way. • recognise and reflect on group processes, roles and dynamics in newly formed teams. • develop and test, in semester-long academic project settings, strategies for constructive conflict resolution and for dealing with different personality and working styles within their student cohort. • foster a positive, learning-friendly team culture through cooperative behavior, openness and empathy. • analyze, within everyday student life, individual and organizational factors influencing students' work-life balance and derive situation-specific measures for regulating their own strain that can be integrated into the course of the semester. • assess gender-related inequalities in work and learning contexts and develop measures to promote non-discriminatory, gender-inclusive collaboration.		
Course contents	<u>Collaboration & Interpersonal Skills /ILV / LV-Nr: CIS / 1.Semester / ECTS: 1</u> - Fundamentals of intercultural communication - Communication styles, value orientations and dealing with misunderstandings - Team roles and decision-making processes in culturally diverse groups - Intercultural conflict patterns and resolution strategies - Building trust, empathy and perspective-taking in international contexts - Diversity, inclusion and ethical dimensions of collaboration - Reflection on one's own cultural background and communication preferences - Models and methods for analysing strain and resources (work-life balance) - Mechanisms of gender roles, bias and structural disadvantage, as well as practical approaches to gender-inclusive design of work and learning environments - Practical exercises on team building and collaboration in international settings		
Teaching and learning methods	<u>Collaboration & Interpersonal Skills /ILV / LV-Nr: CIS / 1.Semester / ECTS: 1</u> Lectures, exercises, presentations		
Evaluation Methods Criteria	<u>Collaboration & Interpersonal Skills /ILV / LV-Nr: CIS / 1.Semester / ECTS: 1</u> Participation		

Module number:	Communication	Scope:	
SCO		5	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	1. Semester		
Level	1. Semester: Advanced		
Previous knowledge	1. Semester: Basics of marketing & communication at bachelor level		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Strategic Communication for Innovation & Adaptation /ILV / LV-Nr: SCO.1 / 1.Semester / ECTS: 5</u> - Hohenauer, F. (2025). Toolbox Innovation Communication: Breakthroughs with Skillful Communication: Strategic Models and Methods That Will Help Innovation Succeed. Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-46542-1 - O'Rourke, J. S., & Smith, J. A. (2023). Strategic crisis communication. Routledge. https://doi.org/10.4324/9781003322849 - Weder, F. (Ed.). (2025). Strategic sustainability communication: Principles, perspectives, and potential (1st ed. 2025). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-89486-2		
Acquisition of skills	<u>Strategic Communication for Innovation & Adaptation /ILV / LV-Nr: SCO.1 / 1.Semester / ECTS: 5</u> The participants: • analyze communicative structures, narratives and stakeholder logics in transformation and innovation processes. • evaluate communication strategies with regard to their effect on organizational resilience, innovation and readiness for change. • develop target-group-appropriate communicative solution approaches for complex, high-risk or conflict-laden sustainability and innovation processes. • reflect on communicative dysfunctions and derive measures to improve organizational resilience. • design consistent communication requirements for change, innovation and transformation projects in the energy and sustainability context.		
Course contents	<u>Strategic Communication for Innovation & Adaptation /ILV / LV-Nr: SCO.1 / 1.Semester / ECTS: 5</u> - Fundamentals of strategic communication in change and innovation processes - Communication as a driver of organizational resilience - Narratives, storylines and framing in transformation contexts - Stakeholder and actor communication in the energy & sustainability field - Communication in crises, uncertainties and conflicts - The psychology and dynamics of resistance & acceptance - Communication requirements in innovation and change projects		
Teaching and learning methods	<u>Strategic Communication for Innovation & Adaptation /ILV / LV-Nr: SCO.1 / 1.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Strategic Communication for Innovation & Adaptation /ILV / LV-Nr: SCO.1 / 1.Semester / ECTS: 5</u> Portfolio assessment		

Module number:	Compendium	Scope:	
COM		10	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	1. Semester		
Level	1. Semester: Introductory		
Previous knowledge	1. Semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Compendium Energy Systems & Technologies /ILV / LV-Nr: COM.1 / 1.Semester / ECTS: 5</u> - Bach, E., Jungblut, V., Maier, U., Mattheus, B., & Wieneke, F. (2017). Technische Physik: Lehr- und Aufgabenbuch Gesamtband (6. Aufl.). Europa-Lehrmittel. - Cerbe, G., & Wilhelms, G. (2023). Technische Thermodynamik: Theoretische Grundlagen und praktische Anwendungen (18. Aufl.). Carl Hanser. - Kaltschmitt, M., Streicher, W., & Wiese, A. (2020). Erneuerbare Energien: Systemtechnik, Wirtschaftlichkeit, Umweltaspekte (6. Aufl.). Springer. - Tkotz, K., Burgmaier, M., Eichler, W., & Neumann, R. (2024). Fachkunde Elektrotechnik (34. Aufl.). Europa-Lehrmittel.		
	<u>Compendium: Sustainability, Transformation and Resilience /ILV / LV-Nr: COM.2 / 1.Semester / ECTS: 5</u> - Alibašić, H. (2022). Strategic Resilience and Sustainability Planning: Management Strategies for Sustainable and Climate-Resilient Communities and Organizations (2nd ed). Springer International Publishing AG. - Alvarez-Risco, A., Rosen, M., & Del-Aguila-Arcentales, S. (Eds). (2022). Towards a Circular Economy: Transdisciplinary Approach for Business. Springer International Publishing. https://doi.org/10.1007/978-3-030-94293-9 - Negi, A. (with Pérez Pineda, J. A., & Blankenbach, J.). (2020). Sustainability Standards and Global Governance: Experiences of Emerging Economies (1st ed). Springer Singapore Pte. Limited. - Schulte, U. G. (2024). Sustainable Business: Executive Insights on Shaping Sustainable Corporate Practices. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-58596-8 - Sharifi, A. (Ed.). (2024). Environmental Sustainability and Resilience: Policies and Practices (1st ed. 2024). Springer Nature Singapore. https://doi.org/10.1007/978-981-97-6639-0		
Acquisition of skills	<u>Compendium Energy Systems & Technologies /ILV / LV-Nr: COM.1 / 1.Semester / ECTS: 5</u> The participants: • analyze the fundamental structures of modern energy systems (generation–transmission–consumption) and identify key technological and systemic dependencies. • evaluate different power generation technologies with regard to efficiency, sustainability, risks and market maturity. • compare renewable and conventional energy technologies and derive from them implications for energy markets, grids and sustainability strategies. • develop simple, evidence-based lines of reasoning for technology- and system-related decisions in energy & sustainability management. • reflect on their own knowledge gaps, learning needs and application possibilities regarding technological fundamentals and formulate individual development steps.		
	<u>Compendium: Sustainability, Transformation and Resilience /ILV / LV-Nr: COM.2 / 1.Semester / ECTS: 5</u> The participants: • analyze fundamental concepts of sustainable development and structure their ecological, social and economic dimensions in simple system models. • assess basic ecological concepts as well as fundamental mechanisms of climate change and derive from them initial relationships between anthropogenic drivers and systemic changes. • compare societal and technological transformation processes and develop well-founded assessments of their significance for sustainable development. • examine resilience principles in ecological, technical and social systems and evaluate fundamental strategies for strengthening adaptability and robustness. • integrate sustainability, transformation and ecosystem dynamics into an initial, scientifically grounded overall understanding and formulate fundamental conclusions for sustainable courses of action.		
Course contents	<u>Compendium Energy Systems & Technologies /ILV / LV-Nr: COM.1 / 1.Semester / ECTS: 5</u> - Electrochemistry - Mechanics - Thermodynamics - Electrical engineering - Design, operating principles and key parameters of power generation plants		

	<u>Compendium: Sustainability, Transformation and Resilience /ILV / LV-Nr: COM.2 / 1.Semester / ECTS: 5</u> - Fundamentals of sustainable development - Basic ecological concepts - Climate change, drivers and fundamental mechanisms of action - Societal and technological transformation processes - Fundamentals of resilience in ecological, technical and social systems - Interactions between sustainability, transformation and ecosystems - Introduction to scientific sustainability concepts
Teaching and learning methods	<u>Compendium Energy Systems & Technologies /ILV / LV-Nr: COM.1 / 1.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work, field trip

Teaching and learning methods	<u>Compendium: Sustainability, Transformation and Resilience /ILV / LV-Nr: COM.2 / 1.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work
Evaluation Methods Criteria	<u>Compendium Energy Systems & Technologies /ILV / LV-Nr: COM.1 / 1.Semester / ECTS: 5</u> Portfolio assessment
	<u>Compendium: Sustainability, Transformation and Resilience /ILV / LV-Nr: COM.2 / 1.Semester / ECTS: 5</u> Portfolio assessment

Module number:	Energy Market, Trading & Risk Management	Scope:	
EMT		9	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	1. Semester		
	2. Semester		
Level	1. Semester: Introductory & advanced / 2. Semester: Advanced		
Previous knowledge	1. Semester: none / 2. Semester: Basics of energy trading & market mechanisms		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Energy Market, Trading & Risk Management 1 /ILV / LV-Nr: EMT.1 / 1.Semester / ECTS: 5</u> - Schwintowski, H.-P. (2018). Handbuch Energiehandel (4. Aufl.). Erich Schmidt Verlag. - Ströbele, W., Pfaffenberger, W., & Heuterkes, M. (2012). Energiewirtschaft: Einführung in Theorie und Politik. Oldenbourg Wissenschaftsverlag. - Zenke, I., & Schäfer, R. (2017). Energiehandel in Europa: Öl, Gas, Strom, Derivate, Zertifikate (4. Aufl.).		
	<u>Energy Market, Trading & Risk Management 2 /ILV / LV-Nr: EMT.2 / 2.Semester / ECTS: 4</u> - Bhattacharyya, S. C. (2019). Energy economics: Concepts, issues, markets and governance (2nd ed). Springer. - Hafner, M., & Luciani, G. (Eds). (2022). The Palgrave Handbook of International Energy Economics. Springer International Publishing. https://doi.org/10.1007/978-3-030-86884-0 - Kandpal, V., Jaswal, A., Santibanez Gonzalez, E. D. R., & Agarwal, N. (2024). Sustainable Energy Transition: Circular Economy and Sustainable Financing for Environmental, Social and Governance (ESG) Practices. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-52943-6 - Müsgens, F., & Bade, A. (2024). Energy Trading and Risk Management. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-57238-8 - Thewissen, J., Arslan-Ayaydin, Ö., Westerman, W., & Dorsman, A. (Eds). (2024). The ESG Framework and the Energy Industry: Demand and Supply, Market Policies and Value Creation. Springer International Publishing. https://doi.org/10.1007/978-3-031-48457-5		
Acquisition of skills	<u>Energy Market, Trading & Risk Management 1 /ILV / LV-Nr: EMT.1 / 1.Semester / ECTS: 5</u> The participants: • analyze the fundamental structures of energy-economic systems as well as their interactions between generation, trading and regulation. • evaluate market mechanisms in the context of European energy markets with regard to efficiency, risks and sustainability. • examine the key roles of market participants and derive the effects of their actions on market prices and system stability. • compare risk types in energy trading and develop simple, methodologically sound risk analyzes. • reflect on the uncertainties of energy markets and formulate initial strategic conclusions for energy & sustainability management.		
	<u>Energy Market, Trading & Risk Management 2 /ILV / LV-Nr: EMT.2 / 2.Semester / ECTS: 4</u> The participants: • analyze complex market mechanisms and price-formation processes in different energy market segments • evaluate regulatory interventions and market architectures with regard to their effect on market stability, competition and investment. • develop advanced risk analyzes to derive strategic trading and procurement decisions. • examine the fields of innovation of energy providers and assess their effects on energy markets and risks. • reflect on dynamic market behavior in a simulation-based business game and derive overarching conclusions for real-world market and risk management.		
Course contents	<u>Energy Market, Trading & Risk Management 1 /ILV / LV-Nr: EMT.1 / 1.Semester / ECTS: 5</u> - Fundamentals of energy economics and the specific characteristics of energy commodities - Market structures and price-formation mechanisms in European energy markets - Roles of market participants in energy trading and the regulatory framework - Price, volume and credit risks in energy trading - Basic concepts of hedging and strategic procurement decisions - Interactions between the energy transition, carbon pricing and market design - Impact of volatile markets on risk profiles and strategic management decisions		
	<u>Energy Market, Trading & Risk Management 2 /ILV / LV-Nr: EMT.2 / 2.Semester / ECTS: 4</u>		

	- In-depth market mechanisms in electricity, gas and flexibility markets - Methods of advanced risk management in energy trading - Fields of innovation among energy providers and market participants - Strategic behavior in volatile energy markets - Effects of regulatory changes on trading, portfolios and investments
Teaching and learning methods	<u>Energy Market, Trading & Risk Management 1 /ILV / LV-Nr: EMT.1 / 1.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work
	<u>Energy Market, Trading & Risk Management 2 /ILV / LV-Nr: EMT.2 / 2.Semester / ECTS: 4</u> Lectures, discussions, exercises, case studies, group work
Evaluation Methods Criteria	<u>Energy Market, Trading & Risk Management 1 /ILV / LV-Nr: EMT.1 / 1.Semester / ECTS: 5</u> Portfolio assessment
	<u>Energy Market, Trading & Risk Management 2 /ILV / LV-Nr: EMT.2 / 2.Semester / ECTS: 4</u> Portfolio assessment

Module number:	Applied Lab	Scope:	
LAB		4	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	1. Semester		
	2. Semester		
Level	1. Semester: Introductory & advanced / 2. Semester: Advanced		
Previous knowledge	1. Semester: none / 2. Semester: Applied Lab 1		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Applied Lab 1 / PT / LV-Nr: LAB.1 / 1.Semester / ECTS: 2</u> - Kara, H., Gergen, K. J., & Gergen, M. M. (2020). Creative research methods: A practical guide (Second edition). Policy Press. - Publication manual of the American Psychological Association: The official guide to APA style (Seventh edition). (2020). American Psychological Association.		
	<u>Applied Lab 2 / PT / LV-Nr: LAB.2 / 2.Semester / ECTS: 2</u> - Kara, H., Gergen, K. J., & Gergen, M. M. (2020). Creative research methods: A practical guide (Second edition). Policy Press. - Publication manual of the American Psychological Association: The official guide to APA style (Seventh edition). (2020). American Psychological Association.		
Acquisition of skills	<u>Applied Lab 1 / PT / LV-Nr: LAB.1 / 1.Semester / ECTS: 2</u> The participants: • analyze practice-oriented tasks from energy & sustainability management and structure them into actionable work steps. • apply fundamental methods and tools of project and team work in order to work on simple problems in a lab or project context. • develop initial technical, economic or organizational solution approaches and implement them as prototypes or models. • document and present their work results in an audience-appropriate way, both visually and in written or digital form. • reflect on their approach, take feedback on board constructively and derive from it improvements for future projects.		
	<u>Applied Lab 2 / PT / LV-Nr: LAB.2 / 2.Semester / ECTS: 2</u> The participants: • analyze practice-oriented tasks from energy & sustainability management and structure them into actionable work steps. • apply fundamental methods and tools of project and team work in order to work on tasks in an interdisciplinary environment. • develop simple technical, economic or organizational solution approaches and implement them as prototypes or models. • document and present work results in an audience-appropriate way, whether visually, in writing or digitally. • reflect on their approach, take feedback on board constructively and derive from it improvements for future projects.		
Course contents	<u>Applied Lab 1 / PT / LV-Nr: LAB.1 / 1.Semester / ECTS: 2</u> - Introduction to and deepening of project- and lab-based work - Fundamentals of methodical problem solving and creativity techniques - Use of digital tools - Introduction to documentation and presentation techniques - Teamwork and communication in a project context - Implementation of small practical tasks or micro-projects - Reflection on work processes and self-organization - Feedback and review rounds to improve results		
	<u>Applied Lab 2 / PT / LV-Nr: LAB.2 / 2.Semester / ECTS: 2</u> - Deepening of project- and lab-based work - Deepening of methodical problem solving and creativity techniques - Use of digital tools - Deepening of documentation and presentation techniques - Teamwork and communication in a project context - Implementation of small practical tasks or micro-projects - Reflection on work processes and self-organization - Feedback and review rounds to improve results		

Teaching and learning methods	<u>Applied Lab 1 /PT / LV-Nr: LAB.1 / 1.Semester / ECTS: 2</u> Problem-based & experiential learning, presentations
	<u>Applied Lab 2 /PT / LV-Nr: LAB.2 / 2.Semester / ECTS: 2</u> Problem-based & experiential learning, presentations
Evaluation Methods Criteria	<u>Applied Lab 1 /PT / LV-Nr: LAB.1 / 1.Semester / ECTS: 2</u> Portfolio
	<u>Applied Lab 2 /PT / LV-Nr: LAB.2 / 2.Semester / ECTS: 2</u> Portfolio

Module number:	European & International Law	Scope:	
LAW		6	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	1. Semester		
	2. Semester		
Level	1. Semester: Introductory / 2. Semester: Advanced		
Previous knowledge	1. Semester: Basic knowledge of the legal systems in the students' countries of origin / 2. Semester: Basics of European institutions and law		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>European & International Law 1 /ILV / LV-Nr: LAW.1 / 1.Semester / ECTS: 2</u> - Heffron, R. J. (2021). Energy Law (2nd ed). Springer International Publishing AG. - Hodson, D., Puetter, U., Saurugger, S., & Peterson, J. (Eds). (2022). The institutions of the European Union (Fifth edition). Oxford University Press. - Kenealy, D., Hadfield, A., Corbett, R., & Peterson, J. (Eds). (2022). The European Union: How does it work? (Sixth edition). - Techera, E. J. (2025). The sustainable development goals in international law and policy. Routledge. https://doi.org/10.4324/9781003583981		
	<u>European & International Law 2 /ILV / LV-Nr: LAW.2 / 2.Semester / ECTS: 4</u> - Heffron, R. J. (2021). Energy Law (2nd ed). Springer International Publishing AG. - Hodson, D., Puetter, U., Saurugger, S., & Peterson, J. (Eds). (2022). The institutions of the European Union (Fifth edition). Oxford University Press. - Kenealy, D., Hadfield, A., Corbett, R., & Peterson, J. (Eds). (2022). The European Union: How does it work? (Sixth edition). - Techera, E. J. (2025). The sustainable development goals in international law and policy. Routledge. https://doi.org/10.4324/9781003583981		
Acquisition of skills	<u>European & International Law 1 /ILV / LV-Nr: LAW.1 / 1.Semester / ECTS: 2</u> The participants: • analyze the structure, functions and decision-making procedures of key European institutions in the context of energy- and sustainability-related legislation. • evaluate the effect of institutional interactions within the EU on energy- and climate-policy legal acts and transformation processes. • interpret international and European legal sources and derive their significance for companies and public organizations in energy & sustainability management. • examine the role of international institutions and compare their influence with that of the EU on global energy and sustainability governance.		
	<u>European & International Law 2 /ILV / LV-Nr: LAW.2 / 2.Semester / ECTS: 4</u> The participants: • analyze the in-depth legal structures of European energy law and evaluate their effect on market regulation and sustainable transformation. • examine international climate negotiations and global governance mechanisms and derive their legal and political relevance for energy and sustainability strategies. • evaluate ECJ case law in the energy, environmental and climate fields and develop positions for regulatory and corporate decisions. • interpret complex legal instruments of the internal energy market and design legally sound solution approaches for conflicts and compliance challenges. • compare European external energy policy with international regimes and argue strategically about regulatory options in multilateral contexts.		
Course contents	<u>European & International Law 1 /ILV / LV-Nr: LAW.1 / 1.Semester / ECTS: 2</u> - European and international institutions - International agreements relevant to energy & sustainability management - EU legislative and decision-making processes - Legal acts in the energy and sustainability field - Governance and compliance with the implementation of European requirements in companies, oversight by European and national regulatory authorities, and requirements in the area of ESG and sustainability reporting - Case studies on the influence of European institutions on energy prices, emissions trading, supply chain law and climate litigation before the European Court of Justice		
	<u>European & International Law 2 /ILV / LV-Nr: LAW.2 / 2.Semester / ECTS: 4</u>		

	- In-depth study of European energy law covering market rules, network regulation, institutional competencies and current reform processes - International climate negotiations and global governance covering UNFCCC, COP diplomacy and international mechanisms for climate protection - EU internal market regulation for energy and sustainability covering competition aspects, state aid, security of supply and the transformation of energy systems - European case law in energy and environmental law covering landmark rulings on emissions trading, climate litigation, the internal energy market and fundamental environmental rights - Conflict resolution and contractual instruments in international energy law covering the regulation of cross-border energy projects, supply contracts and dispute settlement - The external relations of the European Union in the energy sector covering energy partnerships, global security policy and sustainable external energy policy
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Teaching and learning methods	<u>European & International Law 1 /ILV / LV-Nr: LAW.1 / 1.Semester / ECTS: 2</u> Lectures, discussions, exercises, case studies, group work
	<u>European & International Law 2 /ILV / LV-Nr: LAW.2 / 2.Semester / ECTS: 4</u> Lectures, discussions, exercises, case studies, group work, field trip
Evaluation Methods Criteria	<u>European & International Law 1 /ILV / LV-Nr: LAW.1 / 1.Semester / ECTS: 2</u> Portfolio assessment
	<u>European & International Law 2 /ILV / LV-Nr: LAW.2 / 2.Semester / ECTS: 4</u> Portfolio assessment

Module number:	Circular Economy, Bioeconomy and Regenerative Systems	Scope:	
CIR		4	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	2. Semester		
Level	2. Semester: Introductory & advanced		
Previous knowledge	2. Semester: Basics of sustainability management		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Circular Economy, Bioeconomy and Regenerative Systems /ILV / LV-Nr: CIR / 2.Semester / ECTS: 4</u> - Fet, A. M. (Ed.). (2023). Business Transitions: A Path to Sustainability: The CapSEM Model. Springer International Publishing. https://doi.org/10.1007/978-3-031-22245-0 - Fischer, M., Foord, D., Freccà, J., Hillebrand, K., Kissling-Näf, I., Meili, R., Peskova, M., Risi, D., Schmidpeter, R., & Stucki, T. (2023). Sustainable Business: Managing the Challenges of the 21st Century. Springer International Publishing. https://doi.org/10.1007/978-3-031-25397-3 - Lehtimäki, H., Aarikka-Stenroos, L., Jokinen, A., & Jokinen, P. (Eds). (2024). The Routledge handbook of catalysts for a sustainable circular economy. Routledge, Taylor & Francis Group. - Lewandowski, I., Gaudet, N., Lask, J., Maier, J., Tchouga, B., & Vargas-Carpintero, R. (Eds). (2018). Bioeconomy: Shaping the transition to a sustainable, biobased economy (1st edition 2018). Springer Open. https://doi.org/10.1007/978-3-319-68152-8 - Mavropoulos, A., & Nilsen, A. W. (2020). Industry 4.0 and circular economy: Towards a wasteless future or a wasteful planet? Wiley. - Thrän, D., & Moesenfechtel, U. (Eds). (2022). The bioeconomy system. Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-662-64415-7 - Weetman, C. (2021). A circular economy handbook: How to build a more resilient, competitive and sustainable business (Second edition). Kogan Page.		
Acquisition of skills	<u>Circular Economy, Bioeconomy and Regenerative Systems /ILV / LV-Nr: CIR / 2.Semester / ECTS: 4</u> The participants: • analyze concepts and principles of the circular economy and the bioeconomy and critically evaluate their ecological, economic and societal interactions. • characterise and assess models of regenerative systems and derive their significance for sustainable transformation processes in a comprehensible manner. • examine material and value chains with regard to resource efficiency and circularity and develop optimisation options. • model systemic relationships between natural and technical cycles and translate these into integrated transformation approaches. • reflect on the potentials and limits of circular and bio-based economic models and discuss trade-offs between sustainability, economic viability and societal acceptance.		
Course contents	<u>Circular Economy, Bioeconomy and Regenerative Systems /ILV / LV-Nr: CIR / 2.Semester / ECTS: 4</u> - Concepts and principles of the circular economy and the bioeconomy - Regenerative systems and their role in sustainable transformation processes - Material and value chains in the context of resource efficiency and circularity - Systemic relationships between natural and technical cycles - Potentials, limits and trade-offs of circular and bio-based economic models - Modeling and assessment of circular and regenerative system approaches		
Teaching and learning methods	<u>Circular Economy, Bioeconomy and Regenerative Systems /ILV / LV-Nr: CIR / 2.Semester / ECTS: 4</u> Lectures, discussions, exercises, case studies, group work, field trip		
Evaluation Methods Criteria	<u>Circular Economy, Bioeconomy and Regenerative Systems /ILV / LV-Nr: CIR / 2.Semester / ECTS: 4</u> Portfolio assessment		

Module number:	Data Analytics & Modeling	Scope:	
DAT		4	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	2. Semester		
Level	2. Semester: Advanced		
Previous knowledge	2. Semester: Basics of statistics & data management from the bachelor program; basic knowledge of digital tools		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Data Analytics & Modeling /ILV / LV-Nr: DAT / 2.Semester / ECTS: 4</u> - De Wolf, C., Çetin, S., & Bocken, N. M. P. (Eds). (2024). A Circular Built Environment in the Digital Age. Springer International Publishing. https://doi.org/10.1007/978-3-031-39675-5 - Garg, V., Goel, R., Tiwari, P., & Döngül, E. S. (2024). Handbook of Artificial Intelligence Applications for Industrial Sustainability: Concepts and Practical Examples (1st edn). CRC Press. https://doi.org/10.1201/9781003348351 - Heath, C., & Starr, K. (2022). Making numbers count: The art and science of communicating numbers (First Avid Reader Press hardcover edition). Avid Reader Press. - Viceconti, M., & Emili, L. (Eds). (2024). Toward Good Simulation Practice: Best Practices for the Use of Computational Modeling and Simulation in the Regulatory Process of Biomedical Products. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-48284-7		
Acquisition of skills	<u>Data Analytics & Modeling /ILV / LV-Nr: DAT / 2.Semester / ECTS: 4</u> The participants: • analyze large, heterogeneous data volumes from energy & sustainability management contexts and identify relevant patterns, anomalies and relationships. • evaluate big data architectures as well as data quality and data integration processes with regard to their suitability for strategic decisions in energy & sustainability management. • model forecasts, clusters or scenarios using advanced analytical methods and design data-based decision models for complex questions. • reflect on the ethical, data-protection and organizational challenges of data-driven decision-making processes and develop guidelines for the responsible use of big data.		
Course contents	<u>Data Analytics & Modeling /ILV / LV-Nr: DAT / 2.Semester / ECTS: 4</u> - Big data fundamentals in energy & sustainability management - Data quality, data governance, ETL processes and data pipelines - Exploratory data analysis & feature engineering for large data volumes - Modeling methods - Big data tools & ecosystems		
Teaching and learning methods	<u>Data Analytics & Modeling /ILV / LV-Nr: DAT / 2.Semester / ECTS: 4</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Data Analytics & Modeling /ILV / LV-Nr: DAT / 2.Semester / ECTS: 4</u> Portfolio assessment		

Module number:	Innovation Management	Scope:	
INM		4	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	2. Semester		
Level	2. Semester: Introductory & advanced		
Previous knowledge	2. Semester: Basics of sustainability, strategy, communication and technology		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Innovation Management /ILV / LV-Nr: INM / 2.Semester / ECTS: 4</u> - Dodgson, M., Gann, D., & Phillips, N. (2014). The Oxford handbook of innovation management. Oxford university press. - Tidd, J., & Bessant, J. R. (2014). Strategic innovation management. Wiley. - Tidd, J., & Bessant, J. R. (2025). Managing innovation: Integrating technological, market and organizational change (Eighth edition). Wiley. - Trott, P. (2021). Innovation management and new product development (Seventh Edition). Pearson.		
Acquisition of skills	<u>Innovation Management /ILV / LV-Nr: INM / 2.Semester / ECTS: 4</u> The participants: • analyze innovation processes, drivers and barriers in organizations as well as their significance for sustainable energy and transformation systems. • evaluate innovation models and methods with regard to their suitability for sustainable business and supply concepts. • develop innovation-oriented solution approaches for complex challenges in energy and sustainability management. • examine organizational, cultural and market conditions for successful innovation and derive recommendations for action. • design structured innovation processes and reflect on their effectiveness in the context of strategic corporate development.		
Course contents	<u>Innovation Management /ILV / LV-Nr: INM / 2.Semester / ECTS: 4</u> - Fundamentals and models of innovation management - Processes, drivers and barriers of organizational innovation - Methods and approaches for sustainable and transformative innovation - Assessment of technologies, business models and market opportunities - Innovation culture, leadership and organizational conditions - Strategic integration of innovation into sustainable corporate development		
Teaching and learning methods	<u>Innovation Management /ILV / LV-Nr: INM / 2.Semester / ECTS: 4</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Innovation Management /ILV / LV-Nr: INM / 2.Semester / ECTS: 4</u> Portfolio assessment		

Module number:	Smart Cities & Communities	Scope:	
SCC		4	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	2. Semester		
Level	2. Semester: Introductory & advanced		
Previous knowledge	2. Semester: Basics of regional economics & spatial planning		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Smart Cities & Communities /ILV / LV-Nr: SCC / 2.Semester / ECTS: 4</u> - Arbizzani, E., Cangelli, E., Clemente, C., Cumo, F., Giofrè, F., Giovenale, A. M., Palme, M., & Paris, S. (Eds). (2023). Technological Imagination in the Green and Digital Transition. Springer International Publishing. https://doi.org/10.1007/978-3-031-29515-7 - Belaid, F., & Arora, A. (Eds). (2024). Smart Cities: Social and Environmental Challenges and Opportunities for Local Authorities. Springer International Publishing. https://doi.org/10.1007/978-3-031-35664-3 - Bevilacqua, C., Balland, P.-A., Kakderi, C., & Provenzano, V. (Eds). (2023). New Metropolitan Perspectives: Transition with Resilience for Evolutionary Development (Vol. 639). Springer International Publishing. https://doi.org/10.1007/978-3-031-34211-0 - Bisello, A., Vettorato, D., Bottero, M., & Kolokotsa, D. (Eds). (2024). Smart and Sustainable Planning for Cities and Regions: Results of SSPCR 2022. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-39206-1 - Evers, D., Katuri, I., & Van Der Wouden, R. (2024). Urbanization in Europe: Past Developments and Pathways to a Sustainable Future. Springer International Publishing. https://doi.org/10.1007/978-3-031-62261-8 - Ikeda, S. (2024). A City Cannot Be a Work of Art: Learning Economics and Social Theory From Jane Jacobs. Springer Nature Singapore. https://doi.org/10.1007/978-981-99-5362-2 - Rey, E., Laprise, M., & Lufkin, S. (2022). Neighbourhoods in Transition: Brownfield Regeneration in European Metropolitan Areas. Springer International Publishing. https://doi.org/10.1007/978-3-030-82208-8		
Acquisition of skills	<u>Smart Cities & Communities /ILV / LV-Nr: SCC / 2.Semester / ECTS: 4</u> The participants: • analyze urban and regional economic conditions, including diversity and inclusion requirements, and evaluate their significance for smart city and smart community developments. • develop integrated concepts for smart neighbourhoods and examine their technical, ecological, social and economic logic of impact as well as the consideration of diversity and inclusion requirements. • identify relevant digital and infrastructure technologies and evaluate their application potential for urban transformation processes. • assess challenges and risks and make well-founded decisions for sustainable urban and neighbourhood development.		
Course contents	<u>Smart Cities & Communities /ILV / LV-Nr: SCC / 2.Semester / ECTS: 4</u> - Smart cities and smart communities as strategic urban and regional development approaches - Digital and infrastructure technologies such as IoT, mobility solutions, energy systems and data platforms - Urban transformation processes with a focus on energy, mobility, spatial structure and governance - Analysis of urban planning and spatial planning foundations for smart neighbourhood concepts - Diversity and inclusion principles in smart city concepts - Assessment approaches for smart measures with regard to sustainability, quality of life, cost and acceptance - Stakeholder management and participatory decision-making processes in municipal transformation projects		
Teaching and learning methods	<u>Smart Cities & Communities /ILV / LV-Nr: SCC / 2.Semester / ECTS: 4</u> Lectures, discussions, exercises, case studies, group work, field trip		
Evaluation Methods Criteria	<u>Smart Cities & Communities /ILV / LV-Nr: SCC / 2.Semester / ECTS: 4</u> Portfolio assessment		

Module number:	Scientific Communication	Scope:	
SCI		30	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	2. Semester		
	3. Semester		
	4. Semester		
Level	2. Semester: Advanced / 3. Semester: Advanced / 4. Semester: Advanced		
Previous knowledge	2. Semester: Basics of academic work at bachelor level / 2. Semester: Basics of academic work & communication / 3. Semester: Research methods from the bachelor program or from other academic work / 4. Semester: Master's thesis colloquium / 4. Semester: Scientific Communication		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Scientific Communication /ILV / LV-Nr: SCI.1 / 2.Semester / ECTS: 2</u> - Daevicius, R. (2025). Human-Centered Scientific Data Cuisalisation: Making complex data accessible for everyone. Springer. - Hey, B. (2024). Mastering Scientific Presentations: Unlocking Your Communication Skills. Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-44184-5 - Murphy, L., & Alley, M. (2023). The Craft of Scientific Films: How to Make Videos of Your Laboratory, Research, or Technical Projects. Springer International Publishing. https://doi.org/10.1007/978-3-031-25645-5		
	<u>Master Research Seminar 1 - Research Orientation /SE / LV-Nr: SCI.2 / 2.Semester / ECTS: 2</u> - American Psychological Association (Washington, District of Columbia) (Ed.). (2020). Publication manual of the American psychological association (Seventh edition).		
	<u>Master Research Seminar 2 - Research Design & Methodology /SE / LV-Nr: SCI.3 / 3.Semester / ECTS: 2</u> - American psychological association (Ed.). (2020). Publication manual of the American psychological association: The official guide to APA style (7th ed). American psychological association.		
	<u>Master's Thesis Colloquium - Preparation for Publication & Defense /SE / LV-Nr: SCI.4 / 4.Semester / ECTS: 2</u> - American psychological association (Ed.). (2020). Publication manual of the American psychological association: The official guide to APA style (7th ed).		
	<u>Master's Thesis /ILV / LV-Nr: SCI.5 / 4.Semester / ECTS: 22</u> - American psychological association (Ed.). (2020). Publication manual of the American psychological association: The official guide to APA style (7th ed).		
Acquisition of skills	<u>Scientific Communication /ILV / LV-Nr: SCI.1 / 2.Semester / ECTS: 2</u> The participants: • analyze complex subject-specific content and prepare it clearly, appropriately for the audience and in an impact-oriented way for different target groups. • design professional communication formats for science communication and evaluate their impact. • develop convincing storytelling strategies for science-related topics and use narrative techniques purposefully in written and oral communication. • structure data, arguments and subject-specific content in a media-appropriate way and visualise it using suitable digital tools. • assess communicative challenges and make well-founded decisions on comprehensibility, transparency and ethical responsibility in science communication.		
	<u>Master Research Seminar 1 - Research Orientation /SE / LV-Nr: SCI.2 / 2.Semester / ECTS: 2</u> The participants: • analyze a complex subject-specific problem field and identify research-relevant gaps as well as theoretical and practical points of reference. • formulate a precise, verifiable and theory-based research question at master's level and justify its scientific relevance. • develop a suitable conceptual approach and structure key concepts, variables and theoretical references for the planned research project. • assess the feasibility of the research project taking into account data access, methodology, schedule and ethical conditions. • present their research question and project planning in an audience-appropriate manner and reflect on subject-specific feedback to optimise the research design.		
	<u>Master Research Seminar 2 - Research Design & Methodology /SE / LV-Nr: SCI.3 / 3.Semester / ECTS: 2</u>		

	The participants: • analyze different scientific research designs and methods and evaluate their suitability with regard to their own research question. • develop a consistent research design for their master's thesis that coherently connects the research question, objectives, methodology and data basis. • structure methodological approaches and justify these on the basis of scientific criteria. • evaluate the ethical, scientific and practical challenges of their design and formulate measures for quality assurance. • argue their research design in a peer discussion and reflect on feedback for the methodological further development.
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Acquisition of skills	<u>Master's Thesis Colloquium - Preparation for Publication & Defense /SE / LV-Nr: SCI.4 / 4.Semester / ECTS: 2</u> The participants: • analyze scientific publication and presentation formats and evaluate their suitability for presenting their own research. • develop an audience-appropriate scientific presentation of their master's thesis and formulate clear scientific contributions. • design a professional defence presentation and argue research findings clearly, consistently and in a way that supports discussion.
	<u>Master's Thesis /ILV / LV-Nr: SCI.5 / 4.Semester / ECTS: 22</u> The participants: • analyze complex subject-specific, methodological and scientific problems in their research field and derive a precise research question together with a theoretical frame of reference. • develop a robust research design and justify the choice of methods and of data collection and analysis procedures on the basis of scientific quality criteria. • collect, structure and evaluate empirical data or literature and theory material and synthesise valid scientific findings from them. • produce a logically structured, linguistically precise and scientifically sound master's thesis and argue the results reflectively with regard to their scientific and practical contribution. • evaluate the quality, limitations and transferability of their research and formulate recommendations for action as well as approaches for further research. • present and defend their research work convincingly, in a way that supports discussion and appropriately for the audience within the framework of the final examination.
Course contents	<u>Scientific Communication /ILV / LV-Nr: SCI.1 / 2.Semester / ECTS: 2</u> - Fundamentals of professional scientific communication and the principles of clear knowledge transfer - Audience-oriented writing and presenting for expert and non-expert audiences - Storytelling methods for the structured and narrative preparation of complex content - Design and analysis of media formats - Visualisation of data and arguments with digital tools - Communication ethics, transparency and responsibility in conveying science-related topics
	<u>Master Research Seminar 1 - Research Orientation /SE / LV-Nr: SCI.2 / 2.Semester / ECTS: 2</u> - Identification of relevant research fields and derivation of a precise master's thesis research question - Structuring of theoretical foundations and definition of key concepts and variables - Development of an initial research design including the choice of methods and feasibility - Analysis of data and source availability as well as ethical and organizational conditions - Discussion and presentation of the planned master's thesis project
	<u>Master Research Seminar 2 - Research Design & Methodology /SE / LV-Nr: SCI.3 / 3.Semester / ECTS: 2</u> - Methodological grounding - Quality criteria of empirical research - Methodological risks & bias in research - Presentation and peer discussion of the research design
	<u>Master's Thesis Colloquium - Preparation for Publication & Defense /SE / LV-Nr: SCI.4 / 4.Semester / ECTS: 2</u> - Scientific dissemination - Scientific presentation skills - Publication ethics & quality assurance
	<u>Master's Thesis /ILV / LV-Nr: SCI.5 / 4.Semester / ECTS: 22</u> - Preparation of the master's thesis - Academic writing & argumentation - Preparation for the final examination
Teaching and learning methods	<u>Scientific Communication /ILV / LV-Nr: SCI.1 / 2.Semester / ECTS: 2</u> Lectures, discussions, exercises, case studies, group work
	<u>Master Research Seminar 1 - Research Orientation /SE / LV-Nr: SCI.2 / 2.Semester / ECTS: 2</u> Lectures, discussions, exercises, case studies, group work
	<u>Master Research Seminar 2 - Research Design & Methodology /SE / LV-Nr: SCI.3 / 3.Semester / ECTS: 2</u> Lectures, discussions, presentation
	<u>Master's Thesis Colloquium - Preparation for Publication & Defense /SE / LV-Nr: SCI.4 / 4.Semester / ECTS: 2</u> Lectures, discussions, presentation
	<u>Master's Thesis /ILV / LV-Nr: SCI.5 / 4.Semester / ECTS: 22</u>

	Master's thesis, presentation, final examination
Evaluation Methods Criteria	<u>Scientific Communication /ILV / LV-Nr: SCI.1 / 2.Semester / ECTS: 2</u> Portfolio assessment
	<u>Master Research Seminar 1 - Research Orientation /SE / LV-Nr: SCI.2 / 2.Semester / ECTS: 2</u> Term paper Presentation
	<u>Master Research Seminar 2 - Research Design & Methodology /SE / LV-Nr: SCI.3 / 3.Semester / ECTS: 2</u> Term paper Presentation

Evaluation Methods Criteria	<u>Master's Thesis Colloquium - Preparation for Publication & Defense /SE / LV-Nr: SCI.4 / 4.Semester / ECTS: 2</u> Participation
	<u>Master's Thesis /ILV / LV-Nr: SCI.5 / 4.Semester / ECTS: 22</u> Master's thesis

Module number:	Business Project	Scope:	
BPR		4	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Advanced		
Previous knowledge	3. Semester: Advanced Project Management & Design Thinking, energy technologies, sustainability management		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Business Project /PT / LV-Nr: BPR / 3.Semester / ECTS: 4</u> - Kuster, J., Bachmann, C., Hubmann, M., Lippmann, R., & Schneider, P. (2023). Project management handbook: Agile - traditional - hybrid (Second edition). Springer. - Lock, D. (2018). Project management (Seventh edition). Routledge, Taylor & Francis Group.		
Acquisition of skills	<u>Business Project /PT / LV-Nr: BPR / 3.Semester / ECTS: 4</u> The participants: • plan and structure a practice-oriented project with clearly defined goals, roles and tasks. • apply methods of project and process management in an energy or sustainability context. • analyze and work on real-world operational problems using suitable data, tools and models. • present and document project results in an audience-appropriate and professional manner. • reflect on team processes, responsibilities and lessons learned with regard to professional practice.		
Course contents	<u>Business Project /PT / LV-Nr: BPR / 3.Semester / ECTS: 4</u> The students independently carry out a project in small groups amounting to 4 ECTS = 100 hours. This is based on a predefined objective. Planning, coordination, budgeting, monitoring, communication and reporting, as well as finding solutions, are the responsibility of the students. The role of the course instructor focuses on coaching the students.		
Teaching and learning methods	<u>Business Project /PT / LV-Nr: BPR / 3.Semester / ECTS: 4</u> Project & problem-based learning		
Evaluation Methods Criteria	<u>Business Project /PT / LV-Nr: BPR / 3.Semester / ECTS: 4</u> Portfolio		

Module number:	Climate Adaptation & Resilience Management	Scope:	
CAR		4	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Advanced		
Previous knowledge	3. Semester: Basics of sustainability, transformation, risk management		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Climate Adaptation & Resilience Management /ILV / LV-Nr: CAR / 3.Semester / ECTS: 4</u> - Choudhury, M., Dixit, G., & Majumdar, S. (Eds). (2025). Sustainable Synergy: Harnessing Ecosystems for Climate Resilience. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-77957-2 - Korneykova, M., Vasenev, V., Dovletyarova, E., Valentini, R., Gunina, A., Poddubsky, A., & Cheng, Z. (Eds). (2025). Green Infrastructure and Climate Resilience: Proceedings of Smart and Sustainable Cities 2024. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-95796-3 - Qi, J. (2023). Smart Grid Resilience: Extreme Weather, Cyber-Physical Security, and System Interdependency. Springer International Publishing. https://doi.org/10.1007/978-3-031-29290-3 - Skillington, T., & Setti, A. (Eds). (2025). Climate Change Resilience Across Societal Contexts: Challenges, Potentials and Visions for the Future. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-95020-9 - Thomas, V. (2024). Risk and Resilience in the Era of Climate Change. Springer Nature Singapore. https://doi.org/10.1007/978-981-97-2769-8		
Acquisition of skills	<u>Climate Adaptation & Resilience Management /ILV / LV-Nr: CAR / 3.Semester / ECTS: 4</u> The participants: • transfer and evaluate principles and concepts of system resilience to ecological, economic and social systems and analyze their applicability in different contexts. • identify, analyze and integrate climate risks and vulnerabilities into decision-making processes in order to derive well-founded risk and adaptation strategies. • conceive and develop adaptive climate adaptation strategies and measures that take ecological, social and economic dimensions into account in an integrated way and make them assessable. • model systemic interactions between climate, society and infrastructure and derive from them robust recommendations for action for various stakeholder groups. • design governance and management approaches to promote resilient systems and reflectively assess their effectiveness in the context of sustainability transformations.		
Course contents	<u>Climate Adaptation & Resilience Management /ILV / LV-Nr: CAR / 3.Semester / ECTS: 4</u> - Principles of system resilience in ecological, economic and social systems - Identification and analysis of climate risks, vulnerabilities and exposures - Development of adaptive climate adaptation strategies and measures - Systemic modeling of interactions between climate, society and infrastructure - Risk and adaptation assessment based on scientific indicators and scenarios - Governance and management approaches for resilient systems - Strategic decision-making under uncertainty and trade-offs - Effectiveness and transformation analysis of resilience and adaptation measures		
Teaching and learning methods	<u>Climate Adaptation & Resilience Management /ILV / LV-Nr: CAR / 3.Semester / ECTS: 4</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Climate Adaptation & Resilience Management /ILV / LV-Nr: CAR / 3.Semester / ECTS: 4</u> Portfolio assessment		

Module number:	Innovative Energy Concepts	Scope:	
ECO		4	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Advanced		
Previous knowledge	3. Semester: Basics of energy technologies		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Innovative Energy Concepts /ILV / LV-Nr: ECO / 3.Semester / ECTS: 4</u> - Das, L. M. (2024). Hydrogen energy: Production, safety, storage and applications. Wiley. - Labriet, M., Espegren, K., Giannakidis, G., & Ó Gallachóir, B. (Eds). (2024). Aligning the Energy Transition with the Sustainable Development Goals: Key Insights from Energy System Modeling (Vol. 101). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-58897-6 - Lovell, H. (2022). Understanding Energy Innovation: Learning from Smart Grid Experiments. Springer Singapore. https://doi.org/10.1007/978-981-16-6253-9 - Momoh, J. A. (2012). Smart grid: Fundamentals of design and analysis. Wiley. - Quitzow, R., & Zabanova, Y. (Eds). (2024). The Geopolitics of Hydrogen: Volume 1: European Strategies in Global Perspective. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-59515-8 - Weijnen, M. P. C., Lukso, Z., & Farahani, S. (Eds). (2021). Shaping an Inclusive Energy Transition. Springer International Publishing. https://doi.org/10.1007/978-3-030-74586-8 - Zhou, K., & Wen, L. (2022). Smart Energy Management: Data Driven Methods for Energy Service Innovation. Springer Singapore. https://doi.org/10.1007/978-981-16-9360-1		
Acquisition of skills	<u>Innovative Energy Concepts /ILV / LV-Nr: ECO / 3.Semester / ECTS: 4</u> The participants: • analyze the conceptual, technological and systemic foundations of innovative energy and supply concepts. • evaluate technological options taking into account technical, ecological and economic criteria. • examine interactions between digitalisation, flexibility markets and decentralised technologies and derive innovation potentials from them. • assess barriers to transformation and implementation and formulate evidence-based recommendations.		
Course contents	<u>Innovative Energy Concepts /ILV / LV-Nr: ECO / 3.Semester / ECTS: 4</u> - Technological and systemic deep dive into innovative energy concepts - Selected innovative energy concepts such as sector coupling, power-to-X approaches, decentralised energy supply, smart energy systems, energy storage technologies, and data and automation potentials - Innovation pathways in the context of renewable and hybrid supply systems		
Teaching and learning methods	<u>Innovative Energy Concepts /ILV / LV-Nr: ECO / 3.Semester / ECTS: 4</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Innovative Energy Concepts /ILV / LV-Nr: ECO / 3.Semester / ECTS: 4</u> Portfolio assessment		

Module number:	International Urban & Community Development Project	Scope:	
INW		2	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Advanced		
Previous knowledge	3. Semester: Basics of project management, sustainability & energy		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>International Urban & Community Development Project /SE / LV-Nr: INW / 3.Semester / ECTS: 2</u> The literature is selected for the specific project topics and will be announced at the beginning or during the course of the project. It includes current scientific publications, case studies, international reports, and practice-oriented resources on sustainable urban and community development.		
Acquisition of skills	<u>International Urban & Community Development Project /SE / LV-Nr: INW / 3.Semester / ECTS: 2</u> The participants: • develop innovative solution approaches for real-world problems in the field of Sustainable Urban & Community Development within an interdisciplinary team. • communicate and present project results in an audience-appropriate way in an international context. • reflect on team processes, cultural perspectives and their own role in interdisciplinary projects.		
Course contents	<u>International Urban & Community Development Project /SE / LV-Nr: INW / 3.Semester / ECTS: 2</u> - Project work on real-world case studies, taking economic and ESG criteria into account - Teamwork in interdisciplinary and intercultural groups - Development and presentation of an innovative project concept		
Teaching and learning methods	<u>International Urban & Community Development Project /SE / LV-Nr: INW / 3.Semester / ECTS: 2</u> Project & problem-based learning		
Evaluation Methods Criteria	<u>International Urban & Community Development Project /SE / LV-Nr: INW / 3.Semester / ECTS: 2</u> Project		

Module number:	Collaborative Leadership & Mediation	Scope:	
MED		3	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Introductory & advanced		
Previous knowledge	3. Semester: Basics of communication & leadership		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Collaborative Leadership & Mediation /ILV / LV-Nr: MED / 3.Semester / ECTS: 3</u> - Busch, D. (Ed.). (2023). The Routledge handbook of intercultural mediation. Routledge. https://doi.org/10.4324/9781003227441 - Landier, H. (2024). Mediation and Transdisciplinarity: Navigating Conflicts in Times of Crisis. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-78405-7 - Schienle, W., & Steinborn, A. (2025). Psychological Conflict Management: Professional Tools for Specialists and Managers. Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-47281-8		
Acquisition of skills	<u>Collaborative Leadership & Mediation /ILV / LV-Nr: MED / 3.Semester / ECTS: 3</u> The participants: • analyze conflict structures and HRM-related fields of conflict in organizational contexts and evaluate their effects on teams and leadership situations. • develop mediative intervention strategies and apply suitable methods of conflict facilitation professionally. • design collaborative leadership processes and steer decision-making and communication processes in heterogeneous teams. • select appropriate conversation-management and de-escalation techniques and conduct mediation and clarification discussions in a structured way. • assess the ethical, legal and organizational conditions of mediation-oriented HRM practice and make well-founded decisions in demanding leadership situations.		
Course contents	<u>Collaborative Leadership & Mediation /ILV / LV-Nr: MED / 3.Semester / ECTS: 3</u> - Mediation in an organizational context - HRM-related fields of conflict - Methods of collaborative leadership - Mediative intervention techniques - Facilitation methods for conflict situations		
Teaching and learning methods	<u>Collaborative Leadership & Mediation /ILV / LV-Nr: MED / 3.Semester / ECTS: 3</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Collaborative Leadership & Mediation /ILV / LV-Nr: MED / 3.Semester / ECTS: 3</u> Portfolio assessment		

Module number:	Innovative Mobility Concepts	Scope:	
MOB		3	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Introductory & advanced		
Previous knowledge	3. Semester: Basics of energy technologies		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Innovative Mobility Concepts /ILV / LV-Nr: MOB / 3.Semester / ECTS: 3</u> - Janasz, T. (2018). Paradigm Shift in Urban Mobility: Towards Factor 10 of Automobility. Springer Gabler. https://doi.org/10.1007/978-3-658-20460-0 - Schwabe, P. (2021). Comparison of Alternative Mobility Concepts. LAP LAMBERT ACADEMIC PUBL. - Shaheen, S. (2018). Shared Mobility: The Potential of Ridehailing and Pooling. In D. Sperling (Ed.), Three Revolutions (pp. 55–76). Island Press/Center for Resource Economics. https://doi.org/10.5822/978-1-61091-906-7_3 - United Nations Economic Commission for Europe. (2020). A Handbook on Sustainable Urban Mobility and Spatial Planning: Promoting Active Mobility. United Nations. https://doi.org/10.18356/8d742f54-en		
Acquisition of skills	<u>Innovative Mobility Concepts /ILV / LV-Nr: MOB / 3.Semester / ECTS: 3</u> The participants: • analyze current and future mobility systems as well as their ecological, economic and societal interactions. • evaluate innovative mobility solutions with regard to sustainability, energy efficiency and system integration. • develop conceptual approaches for sustainable mobility options in companies, municipalities or regions. • reflect on barriers to transformation, user behavior and the regulatory framework and derive improvement options.		
Course contents	<u>Innovative Mobility Concepts /ILV / LV-Nr: MOB / 3.Semester / ECTS: 3</u> - Fundamentals of sustainable and multimodal mobility systems - Electromobility, charging infrastructure and integration into the energy system - Sharing models, mobility-as-a-service and new mobility services - Autonomous and digitally connected mobility - Barriers to transformation - Mobility concepts for companies, cities and regions		
Teaching and learning methods	<u>Innovative Mobility Concepts /ILV / LV-Nr: MOB / 3.Semester / ECTS: 3</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Innovative Mobility Concepts /ILV / LV-Nr: MOB / 3.Semester / ECTS: 3</u> Portfolio assessment		

Module number:	Integrated Building Design & Energy Simulation	Scope:	
SBD		4	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Introductory & advanced		
Previous knowledge	3. Semester: Basics of energy technologies		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Integrated Building Design & Energy Simulation /ILV / LV-Nr: SBD / 3.Semester / ECTS: 4</u> - Alavi, H., Kookalani, S., Rahmian, F., & Forcada, N. (2024). Integrated Building Intelligence (1st ed. 2024). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-68865-2 - Brackney, L., Parker, A., Macumber, D., & Benne, K. (2018). Building Energy Modeling with OpenStudio: A Practical Guide for Students and Professionals. Springer International Publishing. https://doi.org/10.1007/978-3-319-77809-9 - Chen, H., Yan, H., & He, G. (2025). Integrated Energy System Modeling and Simulation (1st ed. 2025). Springer Nature Singapore. https://doi.org/10.1007/978-981-96-0373-2 - Dabija, A.-M. (2024). Architectural Design Strategies for Saving Energy in Buildings: An Architect's View. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-73541-7 - Hensen, J., & Lamberts, R. (Eds). (2019). Building performance simulation for design and operation (Second edition). Routledge. https://doi.org/10.1201/9780429402296 - Stevanovic, S. (2022). Overhang Design Methods: Optimal Thermal and Daylighting Performance (1st ed). Springer.		
Acquisition of skills	<u>Integrated Building Design & Energy Simulation /ILV / LV-Nr: SBD / 3.Semester / ECTS: 4</u> The participants: • analyze building services, building physics and energy-related relationships as well as their relevance for sustainable building and neighbourhood concepts. • evaluate different planning, energy and supply concepts with regard to efficiency, economic viability, CO2 impact and system integration. • develop strategic decisions within the framework of integrated building design, taking into account digital models and energy simulation results. • examine factors influencing building energy demand and performance and derive optimisation approaches for sustainable building and operating concepts. • reflect on the opportunities and limits of energy simulations as well as their significance for decision-making, planning and investment processes.		
Course contents	<u>Integrated Building Design & Energy Simulation /ILV / LV-Nr: SBD / 3.Semester / ECTS: 4</u> - Fundamentals of integrated building design and sustainable building physics - Energy simulation - Building energy demand, load profiles and performance analysis - Planning and assessment of energy-efficient building and supply concepts - Optimisation of energy and operating concepts over the life cycle - Strategic decision-making processes based on simulation results		
Teaching and learning methods	<u>Integrated Building Design & Energy Simulation /ILV / LV-Nr: SBD / 3.Semester / ECTS: 4</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Integrated Building Design & Energy Simulation /ILV / LV-Nr: SBD / 3.Semester / ECTS: 4</u> Portfolio assessment		

Module number:	Sustainability, Governance & Risk Controlling	Scope:	
SGR		4	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Advanced		
Previous knowledge	3. Semester: Basics of sustainability, corporate management, risk		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Sustainability, Governance & Risk Controlling /ILV / LV-Nr: SGR / 3.Semester / ECTS: 4</u> - Çaliyurt, K. T. (Ed.). (2022). New Approaches to CSR, Sustainability and Accountability, Volume III. Springer Nature Singapore. https://doi.org/10.1007/978-981-16-9364-9 - Dathe, T., Dathe, R., Dathe, I., & Helmold, M. (2022). Corporate Social Responsibility (CSR), Sustainability and Environmental Social Governance (ESG): Approaches to Ethical Management. Springer International Publishing. https://doi.org/10.1007/978-3-030-92357-0 - Ibidapo, T. A. (2022). From Industry 4.0 to Quality 4.0: An Innovative TQM Guide for Sustainable Digital Age Businesses. Springer International Publishing. https://doi.org/10.1007/978-3-031-04192-1 - Kandpal, V., Jaswal, A., Santibanez Gonzalez, E. D. R., & Agarwal, N. (2024). Sustainable Energy Transition: Circular Economy and Sustainable Financing for Environmental, Social and Governance (ESG) Practices. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-52943-6 - Klos, Z. S., Kalkowska, J., & Kasprzak, J. (Eds.). (2022). Towards a Sustainable Future - Life Cycle Management: Challenges and Prospects. Springer International Publishing. https://doi.org/10.1007/978-3-030-77127-0 - Sonnemann, G., & Margni, M. (Eds.). (2015). Life Cycle Management. Springer Netherlands. https://doi.org/10.1007/978-94-017-7221-1 - Touriki, F. E., Belhadi, A., Kamble, S., & Benkhati, I. (2022). Sustainable Excellence in Small and Medium Sized Enterprises: Continuous Improvement Approaches that Matter. Springer Singapore. https://doi.org/10.1007/978-981-19-0371-7 - Zipse, O., Hornegger, J., Becker, T., Beckmann, M., Bengsch, M., Feige, I., & Schober, M. (Eds.). (2023). Road to Net Zero: Strategic Pathways for Sustainability-Driven Business Transformation. Springer International Publishing. https://doi.org/10.1007/978-3-031-42224-9		
Acquisition of skills	<u>Sustainability, Governance & Risk Controlling /ILV / LV-Nr: SGR / 3.Semester / ECTS: 4</u> The participants: • identify, interpret and integrate compliance requirements in the environmental and sustainability context into management and reporting processes in order to ensure regulatory and ethical standards. • capture, evaluate and interpret sustainability metrics as well as environmental and social indicators using methods of sustainability assessment, life cycle assessment (LCA) and ESG analyzes. • develop integrated sustainability and risk management strategies that make ecological, social and economic aspects manageable and assessable. • formulate integrative management approaches that purposefully connect governance, sustainability, controlling and risk management in order to foster resilient organizational processes. • design reporting systems and decision-making foundations based on qualitative and quantitative indicators that enable transparent sustainability communication.		
Course contents	<u>Sustainability, Governance & Risk Controlling /ILV / LV-Nr: SGR / 3.Semester / ECTS: 4</u> - Compliance requirements and the regulatory framework in the sustainability context - Sustainability metrics, environmental and social indicators, and ESG analysis approaches - Methods of sustainability assessment and life cycle assessment (LCA) - Design of integrated sustainability and risk management strategies - Governance and accountability systems for sustainable corporate management - Linking sustainability, controlling and risk management - Design of sustainability and risk reporting systems		
Teaching and learning methods	<u>Sustainability, Governance & Risk Controlling /ILV / LV-Nr: SGR / 3.Semester / ECTS: 4</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Sustainability, Governance & Risk Controlling /ILV / LV-Nr: SGR / 3.Semester / ECTS: 4</u> Portfolio assessment		

Module number:	Innovation, Business & Research Transfer	Scope:	
IBR		3	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	4. Semester		
Level	4. Semester: Advanced		
Previous knowledge	4. Semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Innovation, Business & Research Transfer /ILV / LV-Nr: IBR / 4.Semester / ECTS: 3</u> aktuelle wissenschaftliche Publikationen sowie praxisorientierte Beiträge aus Fachzeitschriften, Reports, Fallstudien, Verbandsunterlagen		
Acquisition of skills	<u>Innovation, Business & Research Transfer /ILV / LV-Nr: IBR / 4.Semester / ECTS: 3</u> The participants: • identify and place current developments and innovation impulses from academia, industry and research into the context of energy & sustainability management. • analyze practical and research examples with regard to their relevance and transferability to professional questions. • reflect on the significance of research, innovation and interdisciplinary exchange for their own professional development. • transfer selected findings into application-oriented ideas, strategies or improvement proposals for practice.		
Course contents	<u>Innovation, Business & Research Transfer /ILV / LV-Nr: IBR / 4.Semester / ECTS: 3</u> Students gain insights into current topics, developments and research findings in energy & sustainability management. Various experts from academia, industry and research provide practical impulses on innovation and transfer questions. The content is explored in greater depth through moderated discussions, fireside chats or field trips, and is reflected on with regard to its relevance for professional practice. Topics covered include: - current innovation and research trends in the sector - examples of successful business and research collaborations - approaches to knowledge and technology transfer - digital transformation processes in the energy industry and in sustainability management - reflection on one's own learning and transfer processes in a professional context		
Teaching and learning methods	<u>Innovation, Business & Research Transfer /ILV / LV-Nr: IBR / 4.Semester / ECTS: 3</u> Vorlesungen, Diskussionen, Fallstudien, Exkursionen		
Evaluation Methods Criteria	<u>Innovation, Business & Research Transfer /ILV / LV-Nr: IBR / 4.Semester / ECTS: 3</u> Participation		

Module number:	Study Trip & International Experience	Scope:	
STP		3	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	4. Semester		
Level	4. Semester: Advanced		
Previous knowledge	4. Semester: all modules from the first to the fourth semester		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Study Trip & International Experience /ILV / LV-Nr: STP / 4.Semester / ECTS: 3</u> - Jones, E. L. (2006). Cultures Merging: A Historical and Economic Critique of Culture. Princeton, NJ: Princeton University Press. - Thomas, A. (Ed.). (2003). Handbuch Interkulturelle Kommunikation und Kooperation: Band 1 – Grundlagen und Praxisfelder (1st ed.). Göttingen, Germany: Vandenhoeck & Ruprecht. - Thomas, A. (Ed.). (2003). Handbuch Interkulturelle Kommunikation und Kooperation: Band 2 – Anwendungsfelder und Praxis der interkulturellen Kommunikation (1st ed.). Göttingen, Germany: Vandenhoeck & Ruprecht.		
Acquisition of skills	<u>Study Trip & International Experience /ILV / LV-Nr: STP / 4.Semester / ECTS: 3</u> The participants: • analyze and compare international best practices in energy & sustainability management with regard to sustainability, digitalisation and operational organization. • evaluate different concepts, products and services in the energy & sustainability management context. • reflect on intercultural communication and cooperation processes in a professional environment. • document and present the findings of the excursion in a structured technical report using scientific working methods. • transfer international perspectives to local challenges in their own professional practice.		
Course contents	<u>Study Trip & International Experience /ILV / LV-Nr: STP / 4.Semester / ECTS: 3</u> - Preparation for the study trip: thematic and organizational planning - Advanced study of international energy & sustainability management - Visits to companies, projects, trade fairs or universities in the destination country - Expert discussions with practitioners, public authorities, project developers or research institutions - Observation of international management and sustainability strategies - Intercultural communication and professional conduct in an international context - Follow-up: presentation of results, reflection and transfer to the study program		
Teaching and learning methods	<u>Study Trip & International Experience /ILV / LV-Nr: STP / 4.Semester / ECTS: 3</u> Lectures, discussions, group work, study trip		
Evaluation Methods Criteria	<u>Study Trip & International Experience /ILV / LV-Nr: STP / 4.Semester / ECTS: 3</u> Participation		

2.3.2 Module descriptions part-time

Module number:	Advanced Project Management & Design Thinking	Scope:	
ATP		5	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	1. Semester		
Level	1. Semester: Advanced study		
Previous knowledge	1. Semester: Fundamentals of project management		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Advanced Project Management & Design Thinking (E) /ILV / LV-Nr: ATP / 1.Semester / ECTS: 5</u> - Kuster, J., Bachmann, C., Hubmann, M., Lippmann, R., & Schneider, P. (2023). Project management handbook: Agile - traditional - hybrid (Second edition). Springer. - Lock, D. (2018). Project management (Seventh edition). Routledge, Taylor & Francis Group.		
Acquisition of skills	<u>Advanced Project Management & Design Thinking (E) /ILV / LV-Nr: ATP / 1.Semester / ECTS: 5</u> The participants: • analyze complex project structures in energy & sustainability management and derive critical success factors and risks for different stakeholder groups. • assess advanced project management methods (agile–hybrid–traditional) with regard to their suitability for various FM/RE use cases and structure project-relevant decision-making processes. • design iterative innovation processes based on the design thinking model and develop user-centered solutions for complex problems in energy & sustainability management. • critically reflect on their own project and innovation practice and derive improvement strategies to enhance team performance, user orientation and solution quality.		
Course contents	<u>Advanced Project Management & Design Thinking (E) /ILV / LV-Nr: ATP / 1.Semester / ECTS: 5</u> - Hybrid and agile project management frameworks - Stakeholder, risk and complexity analysis in energy & sustainability management - Design thinking & user research in energy & sustainability management using personas, customer journeys and service blueprints - Rapid prototyping for product, service and process innovations		
Teaching and learning methods	<u>Advanced Project Management & Design Thinking (E) /ILV / LV-Nr: ATP / 1.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Advanced Project Management & Design Thinking (E) /ILV / LV-Nr: ATP / 1.Semester / ECTS: 5</u> Portfolio examination		

Module number:	Collaboration & Interpersonal Skills	Scope:	
CIS		1	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	1. Semester		
Level	1. Semester: Advanced study		
Previous knowledge	1. Semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Collaboration & Interpersonal Skills (E) /ILV / LV-Nr: CIS / 1.Semester / ECTS: 1</u> - Bender, F. (2022). A Roadmap to Intercultural Proficiency: Navigating Through Cultural Diversity and Inclusion. Springer International Publishing. https://doi.org/10.1007/978-3-031-04899-9 - Moussa, M., Doumani, T., McMurray, A., Muenjohn, N., & Deng, L. (2022). Cross-Cultural Performance Management: Transcending Theory to a Practical Framework. Springer International Publishing. https://doi.org/10.1007/978-3-030-91268-0 - Schauer, G. A. (2024). Intercultural Competence and Pragmatics. Springer International Publishing. https://doi.org/10.1007/978-3-031-44472-2 - Stolz, I., & Oldenziel Scherrer, S. (Eds). (2022). International Leadership: Effecting Success Across Borders in a Boundaryless World. Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-37306-1		
Acquisition of skills	<u>Collaboration & Interpersonal Skills (E) /ILV / LV-Nr: CIS / 1.Semester / ECTS: 1</u> The participants: • actively shape the development of well-functioning student teams and take responsibility for shared tasks. • apply fundamental communication and feedback techniques in order to interact with one another respectfully and in a solution-oriented way. • recognize and reflect on group processes, roles and dynamics in newly formed teams. • develop and test strategies for constructive conflict resolution and for dealing with different personality and working styles within their student cohort and their professional environment, in semester-long academic project settings. • foster a positive, learning-conducive team culture through cooperative behavior, openness and empathy. • analyze individual and organizational factors influencing students' work-life balance within everyday study life and derive situation-specific measures for regulating their own workload that can be integrated into the course of the semester and into potential professional employment. • assess gender-related inequalities in work and learning contexts and develop measures to promote non-discriminatory, gender-inclusive collaboration.		
Course contents	<u>Collaboration & Interpersonal Skills (E) /ILV / LV-Nr: CIS / 1.Semester / ECTS: 1</u> - Fundamentals of intercultural communication - Communication styles, value orientations and dealing with misunderstandings - Team roles and decision-making processes in culturally diverse groups - Intercultural conflict patterns and resolution strategies - Building trust, empathy and perspective-taking in international contexts - Diversity, inclusion and ethical dimensions of collaboration - Reflection on one's own cultural background and communication preferences - Models and methods for analyzing stress and resources (work-life balance) - Mechanisms of gender roles, bias and structural disadvantage as well as practical approaches to gender-inclusive design of work and learning environments - Practical exercises on team building and collaboration in international settings		
Teaching and learning methods	<u>Collaboration & Interpersonal Skills (E) /ILV / LV-Nr: CIS / 1.Semester / ECTS: 1</u> Lectures, exercises, presentations		
Evaluation Methods Criteria	<u>Collaboration & Interpersonal Skills (E) /ILV / LV-Nr: CIS / 1.Semester / ECTS: 1</u> Attendance		

Module number:	Compendium	Scope:	
COM		10	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	1. Semester		
Level	1. Semester: Introduction		
Previous knowledge	1. Semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Compendium of Energy Systems & Technologies /ILV / LV-Nr: COM.1 / 1.Semester / ECTS: 5</u> - Bach, E., Jungblut, V., Maier, U., Mattheus, B., & Wieneke, F. (2017). Technische Physik: Lehr- und Aufgabenbuch Gesamtband (6. Aufl.). Europa-Lehrmittel. - Cerbe, G., & Wilhelms, G. (2023). Technische Thermodynamik: Theoretische Grundlagen und praktische Anwendungen (18. Aufl.). Carl Hanser. - Kaltschmitt, M., Streicher, W., & Wiese, A. (2020). Erneuerbare Energien: Systemtechnik, Wirtschaftlichkeit, Umweltaspekte (6. Aufl.). Springer. - Tkotz, K., Burgmaier, M., Eichler, W., & Neumann, R. (2024). Fachkunde Elektrotechnik (34. Aufl.). Europa-Lehrmittel.		
	<u>Compendium of Sustainability, Transformation and Resilience /ILV / LV-Nr: COM.2 / 1.Semester / ECTS: 5</u> - Alibašić, H. (2022). Strategic Resilience and Sustainability Planning: Management Strategies for Sustainable and Climate-Resilient Communities and Organizations (2nd ed). Springer International Publishing AG. - Alvarez-Risco, A., Rosen, M., & Del-Aguila-Arcentales, S. (Eds). (2022). Towards a Circular Economy: Transdisciplinary Approach for Business. Springer International Publishing. https://doi.org/10.1007/978-3-030-94293-9 - Negi, A. (with Pérez Pineda, J. A., & Blankenbach, J.). (2020). Sustainability Standards and Global Governance: Experiences of Emerging Economies (1st ed). Springer Singapore Pte. Limited. - Schulte, U. G. (2024). Sustainable Business: Executive Insights on Shaping Sustainable Corporate Practices. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-58596-8 - Sharifi, A. (Ed.). (2024). Environmental Sustainability and Resilience: Policies and Practices (1st ed. 2024). Springer Nature Singapore. https://doi.org/10.1007/978-981-97-6639-0		
Acquisition of skills	<u>Compendium of Energy Systems & Technologies /ILV / LV-Nr: COM.1 / 1.Semester / ECTS: 5</u> The participants: • analyze the fundamental structures of modern energy systems (generation–transmission–consumption) and identify key technological and systemic dependencies. • assess different energy generation technologies with regard to efficiency, sustainability, risks and market readiness. • compare renewable and conventional energy technologies and derive implications for energy markets, grids and sustainability strategies. • develop simple, evidence-based lines of reasoning for technology- and system-related decisions in energy & sustainability management. • reflect on their own knowledge gaps, learning needs and application opportunities relating to technological fundamentals and formulate individual development steps.		
	<u>Compendium of Sustainability, Transformation and Resilience /ILV / LV-Nr: COM.2 / 1.Semester / ECTS: 5</u> The participants: • analyze the fundamental concepts of sustainable development and structure their ecological, social and economic dimensions within simple systems models. • assess basic ecological concepts as well as the fundamental mechanisms of climate change, and derive initial connections between anthropogenic drivers and systemic changes. • compare social and technological transformation processes and develop well-founded assessments of their significance for sustainable development. • examine principles of resilience in ecological, technical and social systems and evaluate fundamental strategies for strengthening adaptability and robustness. • integrate sustainability, transformation and ecosystem dynamics into an initial, scientifically grounded overall understanding and formulate basic conclusions for sustainable courses of action.		
Course contents	<u>Compendium of Energy Systems & Technologies /ILV / LV-Nr: COM.1 / 1.Semester / ECTS: 5</u> - Electrochemistry - Mechanics - Thermodynamics - Electrical engineering - Design, operating principles and performance parameters of energy generation plants		
	<u>Compendium of Sustainability, Transformation and Resilience /ILV / LV-Nr: COM.2 / 1.Semester / ECTS: 5</u>		

	- Fundamentals of sustainable development - Basic ecological concepts - Climate change, drivers and fundamental mechanisms of action - Social and technological transformation processes - Fundamentals of resilience in ecological, technical and social systems - Interactions between sustainability, transformation and ecosystems - Introduction to scientific sustainability concepts
Teaching and learning methods	<u>Compendium of Energy Systems & Technologies /ILV / LV-Nr: COM.1 / 1.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work, field trip

Teaching and learning methods	<u>Compendium of Sustainability, Transformation and Resilience /ILV / LV-Nr: COM.2 / 1.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work
Evaluation Methods Criteria	<u>Compendium of Energy Systems & Technologies /ILV / LV-Nr: COM.1 / 1.Semester / ECTS: 5</u> Portfolio examination
	<u>Compendium of Sustainability, Transformation and Resilience /ILV / LV-Nr: COM.2 / 1.Semester / ECTS: 5</u> Portfolio examination

Module number:	Energy Economics, Market Mechanisms & Risk Management	Scope:	
EMT		10	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	1. Semester		
	2. Semester		
Level	1. Semester: Introduction & advanced study / 2. Semester: Advanced study		
Previous knowledge	1. Semester: none / 2. Semester: Fundamentals of energy trading & market mechanisms		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Energy Economics, Market Mechanisms & Risk Management 1 /ILV / LV-Nr: EMT.1 / 1.Semester / ECTS: 5</u> - Schwintowski, H.-P. (2018). Handbuch Energiehandel (4. Aufl.). Erich Schmidt Verlag. - Ströbele, W., Pfaffenberger, W., & Heuterkes, M. (2012). Energiewirtschaft: Einführung in Theorie und Politik. Oldenbourg Wissenschaftsverlag. - Zenke, I., & Schäfer, R. (2017). Energiehandel in Europa: Öl, Gas, Strom, Derivate, Zertifikate (4. Aufl.).		
	<u>Energy Economics, Market Mechanisms & Risk Management 2 /ILV / LV-Nr: EMT.2 / 2.Semester / ECTS: 5</u> - Bhattacharyya, S. C. (2019). Energy economics: Concepts, issues, markets and governance (2nd ed). Springer. - Hafner, M., & Luciani, G. (Eds). (2022). The Palgrave Handbook of International Energy Economics. Springer International Publishing. https://doi.org/10.1007/978-3-030-86884-0 - Kandpal, V., Jaswal, A., Santibanez Gonzalez, E. D. R., & Agarwal, N. (2024). Sustainable Energy Transition: Circular Economy and Sustainable Financing for Environmental, Social and Governance (ESG) Practices. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-52943-6 - Müsgens, F., & Bade, A. (2024). Energy Trading and Risk Management. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-57238-8 - Thewissen, J., Arslan-Ayaydin, Ö., Westerman, W., & Dorsman, A. (Eds). (2024). The ESG Framework and the Energy Industry: Demand and Supply, Market Policies and Value Creation. Springer International Publishing. https://doi.org/10.1007/978-3-031-48457-5		
Acquisition of skills	<u>Energy Economics, Market Mechanisms & Risk Management 1 /ILV / LV-Nr: EMT.1 / 1.Semester / ECTS: 5</u> The participants: • analyze the fundamental structures of energy-economic systems and their interactions between generation, trading and regulation. • assess market mechanisms in the context of European energy markets with regard to efficiency, risks and sustainability. • examine key participant roles and derive the effects of their actions on market prices and system stability. • compare types of risk in energy trading and develop simple, methodologically sound risk analyzes. • reflect on the uncertainties of energy markets and formulate initial strategic conclusions for energy & sustainability management.		
	<u>Energy Economics, Market Mechanisms & Risk Management 2 /ILV / LV-Nr: EMT.2 / 2.Semester / ECTS: 5</u> The participants: • analyze complex market mechanisms and price formation processes in different energy market segments • assess regulatory interventions and market architectures with regard to their impact on market stability, competition and investments. • develop advanced risk analyzes in order to derive strategic trading and procurement decisions. • examine fields of innovation among energy suppliers and assess their effects on energy markets and risks. • reflect on dynamic market behavior in a simulation-based business game and derive overarching conclusions for real-world market and risk management.		
Course contents	<u>Energy Economics, Market Mechanisms & Risk Management 1 /ILV / LV-Nr: EMT.1 / 1.Semester / ECTS: 5</u> - Fundamentals of energy economics and the specific characteristics of energy commodities - Market structures and price formation mechanisms in European energy markets - Roles of market participants in energy trading and the regulatory framework - Price, volume and credit risks in energy trading - Basic concepts of hedging and strategic procurement decisions - Interactions between the energy transition, CO ₂ pricing and market design - Impact of volatile markets on risk profiles and strategic management decisions		
	<u>Energy Economics, Market Mechanisms & Risk Management 2 /ILV / LV-Nr: EMT.2 / 2.Semester / ECTS: 5</u> - In-depth market mechanisms in electricity, gas and flexibility markets - Methods of advanced risk management in energy trading - Fields of innovation among energy suppliers and market participants - Strategic behavior in volatile energy markets - Effects of regulatory changes on trading, portfolios and investments		
Teaching and learning methods	<u>Energy Economics, Market Mechanisms & Risk Management 1 /ILV / LV-Nr: EMT.1 / 1.Semester / ECTS: 5</u>		

	Lectures, discussions, exercises, case studies, group work
	<u>Energy Economics, Market Mechanisms & Risk Management 2 /ILV / LV-Nr: EMT.2 / 2.Semester / ECTS: 5</u>
	Lectures, discussions, exercises, case studies, group work
Evaluation Methods Criteria	<u>Energy Economics, Market Mechanisms & Risk Management 1 /ILV / LV-Nr: EMT.1 / 1.Semester / ECTS: 5</u>
	Portfolio examination
	<u>Energy Economics, Market Mechanisms & Risk Management 2 /ILV / LV-Nr: EMT.2 / 2.Semester / ECTS:5</u>
	Portfolio examination

Module number:	Strategic Communication for Resilience & Innovation	Scope:	
SCO		9	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	1. Semester		
	2. Semester		
Level	1. Semester: Advanced study / 2. Semester: Introduction & advanced study		
Previous knowledge	1. Semester: Fundamentals of marketing & communication at bachelor's level / 2. Semester: Fundamentals of regional economics & spatial planning		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Strategic Communication for Resilience & Innovation /ILV / LV-Nr: SCO / 1.Semester / ECTS: 5</u> - Hohenauer, F. (2025). Toolbox Innovation Communication: Breakthroughs with Skillful Communication: Strategic Models and Methods That Will Help Innovation Succeed. Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-46542-1 - O'Rourke, J. S., & Smith, J. A. (2023). Strategic crisis communication. Routledge. https://doi.org/10.4324/9781003322849 - Weder, F. (Ed.). (2025). Strategic sustainability communication: Principles, perspectives, and potential (1st ed. 2025). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-89486-2		
	<u>Smart Cities & Regions /ILV / LV-Nr: SCR / 2.Semester / ECTS: 4</u> - Arbizzani, E., Cangelli, E., Clemente, C., Cumo, F., Giofrè, F., Giovenale, A. M., Palme, M., & Paris, S. (Eds). (2023). Technological Imagination in the Green and Digital Transition. Springer International Publishing. https://doi.org/10.1007/978-3-031-29515-7 - Belaid, F., & Arora, A. (Eds). (2024). Smart Cities: Social and Environmental Challenges and Opportunities for Local Authorities. Springer International Publishing. https://doi.org/10.1007/978-3-031-35664-3 - Bevilacqua, C., Balland, P.-A., Kakderi, C., & Provenzano, V. (Eds). (2023). New Metropolitan Perspectives: Transition with Resilience for Evolutionary Development (Vol. 639). Springer International Publishing. https://doi.org/10.1007/978-3-031-34211-0 - Bisello, A., Vettorato, D., Bottero, M., & Kolokotsa, D. (Eds). (2024). Smart and Sustainable Planning for Cities and Regions: Results of SSPCR 2022. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-39206-1 - Evers, D., KaturiĆ, I., & Van Der Wouden, R. (2024). Urbanization in Europe: Past Developments and Pathways to a Sustainable Future. Springer International Publishing. https://doi.org/10.1007/978-3-031-62261-8 - Ikeda, S. (2024). A City Cannot Be a Work of Art: Learning Economics and Social Theory From Jane Jacobs. Springer Nature Singapore. https://doi.org/10.1007/978-981-99-5362-2 - Rey, E., Laprise, M., & Lufkin, S. (2022). Neighbourhoods in Transition: Brownfield Regeneration in European Metropolitan Areas. Springer International Publishing. https://doi.org/10.1007/978-3-030-82208-8		
Acquisition of skills	<u>Strategic Communication for Resilience & Innovation /ILV / LV-Nr: SCO / 1.Semester / ECTS: 5</u> The participants: • analyze communicative structures, narratives and stakeholder logics in transformation and innovation processes. • assess communication strategies with regard to their impact on organizational resilience, innovation and readiness for change. • develop audience-appropriate communicative solutions for complex, risk-laden or conflict-prone sustainability and innovation processes. • reflect on communicative dysfunctions and derive measures to improve organizational resilience. • design consistent communication requirements for change, innovation and transformation projects in the energy and sustainability context.		
	<u>Smart Cities & Regions /ILV / LV-Nr: SCR / 2.Semester / ECTS: 4</u> The participants: • analyze urban and regional economic framework conditions, including diversity and inclusion requirements, and assess their significance for smart city and smart community developments. • develop integrated concepts for smart neighborhoods and examine their technical, ecological, social and economic impact logic as well as the consideration of diversity and inclusion requirements. • identify relevant digital and infrastructural technologies and assess their application potential for urban transformation processes. • evaluate challenges and risks and make well-founded decisions for sustainable urban and neighborhood development.		
Course contents	<u>Strategic Communication for Resilience & Innovation /ILV / LV-Nr: SCO / 1.Semester / ECTS: 5</u> - Fundamentals of strategic communication in change and innovation processes - Communication as a driver of organizational resilience - Narratives, storylines and framing in transformation contexts - Stakeholder and participant communication in the energy & sustainability field - Communication in crises, uncertainties and conflicts - Psychology and dynamics of resistance & acceptance - Communication requirements in innovation and change projects		

	<u>Smart Cities & Regions /ILV / LV-Nr: SCR / 2.Semester / ECTS: 4</u> - Smart cities and smart communities as strategic urban and regional development approaches - Digital and infrastructural technologies such as IoT, mobility solutions, energy systems and data platforms - Urban transformation processes with a focus on energy, mobility, spatial structure and governance - Analysis of urban planning and spatial planning fundamentals for smart neighborhood concepts - Diversity and inclusion principles in smart city concepts - Assessment approaches for smart measures with regard to sustainability, quality of life, costs and acceptance - Stakeholder management and participatory decision-making processes in municipal transformation projects
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Teaching and learning methods	<u>Strategic Communication for Resilience & Innovation /ILV / LV-Nr: SCO / 1.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work
	<u>Smart Cities & Regions /ILV / LV-Nr: SCR / 2.Semester / ECTS: 4</u> Lectures, discussions, exercises, case studies, group work, field trip
Evaluation Methods Criteria	<u>Strategic Communication for Resilience & Innovation /ILV / LV-Nr: SCO / 1.Semester / ECTS: 5</u> Portfolio examination
	<u>Smart Cities & Regions /ILV / LV-Nr: SCR / 2.Semester / ECTS: 4</u> Portfolio examination

Module number:	Applied Lab	Scope:	
LAB		6	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	1. Semester		
	2. Semester		
	3. Semester		
Level	1. Semester: Introduction & advanced study / 2. Semester: Advanced study / 3. Semester: Advanced study		
Previous knowledge	1. Semester: none / 2. Semester: Applied Lab 1 / 3. Semester: Applied Lab 2		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Applied Lab 1 /PT / LV-Nr: LAB.1 / 1.Semester / ECTS: 2</u> - Kara, H., Gergen, K. J., & Gergen, M. M. (2020). Creative research methods: A practical guide (Second edition). Policy Press. - Publication manual of the American Psychological Association: The official guide to APA style (Seventh edition). (2020). American Psychological Association.		
	<u>Applied Lab 2 /PT / LV-Nr: LAB.2 / 2.Semester / ECTS: 2</u> - Kara, H., Gergen, K. J., & Gergen, M. M. (2020). Creative research methods: A practical guide (Second edition). Policy Press. - Publication manual of the American Psychological Association: The official guide to APA style (Seventh edition). (2020). American Psychological Association.		
	<u>Applied Lab 3 /PT / LV-Nr: LAB.3 / 3.Semester / ECTS: 2</u> - Kara, H., Gergen, K. J., & Gergen, M. M. (2020). Creative research methods: A practical guide (Second edition). Policy Press. - Publication manual of the American Psychological Association: The official guide to APA style (Seventh edition). (2020). American Psychological Association.		
Acquisition of skills	<u>Applied Lab 1 /PT / LV-Nr: LAB.1 / 1.Semester / ECTS: 2</u> The participants: • analyze practice-oriented tasks from energy & sustainability management and structure them into feasible work steps. • apply fundamental methods and tools of project and team work in order to tackle simple problems in a laboratory or project context. • develop initial technical, economic or organizational solutions and implement them in prototype or model form. • document and present their work results in an audience-appropriate way, both visually and in written or digital form. • reflect on their approach, take on feedback constructively and derive improvements for future projects from it.		
	<u>Applied Lab 2 /PT / LV-Nr: LAB.2 / 2.Semester / ECTS: 2</u> The participants: • analyze practice-oriented tasks from energy & sustainability management and structure them into feasible work steps. • apply fundamental methods and tools of project and team work in order to tackle tasks in an interdisciplinary environment. • develop simple technical, economic or organizational solutions and implement them in prototype or model form. • document and present work results in an audience-appropriate way, visually, in writing or digitally. • reflect on their approach, take on feedback constructively and derive improvements for future projects from it.		
	<u>Applied Lab 3 /PT / LV-Nr: LAB.3 / 3.Semester / ECTS: 2</u> The participants: • analyze practice-oriented tasks from energy & sustainability management and structure them into feasible work steps. • apply fundamental methods and tools of project and team work in order to tackle tasks in an interdisciplinary environment. • develop simple technical, economic or organizational solutions and implement them in prototype or model form. • document and present work results in an audience-appropriate way, visually, in writing or digitally. • reflect on their approach, take on feedback constructively and derive improvements for future projects from it.		

Course contents	<u>Applied Lab 1 /PT / LV-Nr: LAB.1 / 1.Semester / ECTS: 2</u> - Introduction & advanced study in project- and lab-based work - Fundamentals of methodical problem-solving and creativity techniques - Use of digital tools - Introduction to documentation and presentation techniques - Teamwork and communication in a project context - Implementation of small practical tasks or micro-projects - Reflection on work processes and self-organization - Feedback and review rounds to improve results
	<u>Applied Lab 2 /PT / LV-Nr: LAB.2 / 2.Semester / ECTS: 2</u> - Advanced study in project- and lab-based work - Deepening of methodical problem-solving and creativity techniques - Use of digital tools - Advanced study in documentation and presentation techniques - Teamwork and communication in a project context - Implementation of small practical tasks or micro-projects

Course contents	- Reflection on work processes and self-organization - Feedback and review rounds to improve results
	<u>Applied Lab 3 /PT / LV-Nr: LAB.3 / 3.Semester / ECTS: 2</u> - Advanced study in project- and lab-based work - Deepening of methodical problem-solving and creativity techniques - Use of digital tools - Advanced study in documentation and presentation techniques - Teamwork and communication in a project context - Implementation of small practical tasks or micro-projects - Reflection on work processes and self-organization - Feedback and review rounds to improve results
Teaching and learning methods	<u>Applied Lab 1 /PT / LV-Nr: LAB.1 / 1.Semester / ECTS: 2</u> Problem-based & experiential learning, presentations
	<u>Applied Lab 2 /PT / LV-Nr: LAB.2 / 2.Semester / ECTS: 2</u> Problem-based & experiential learning, presentations
	<u>Applied Lab 3 /PT / LV-Nr: LAB.3 / 3.Semester / ECTS: 2</u> Problem-based & experiential learning, presentations
Evaluation Methods Criteria	<u>Applied Lab 1 /PT / LV-Nr: LAB.1 / 1.Semester / ECTS: 2</u> Portfolio
	<u>Applied Lab 2 /PT / LV-Nr: LAB.2 / 2.Semester / ECTS: 2</u> Portfolio
	<u>Applied Lab 3 /PT / LV-Nr: LAB.3 / 3.Semester / ECTS: 2</u> Portfolio

Module number:	Scientific Communication	Scope:	
SCI		30	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	1. Semester		
	2. Semester		
	3. Semester		
	4. Semester		
Level	1. Semester: Advanced study / 2. Semester: Advanced study / 3. Semester: Advanced study / 4. Semester: Advanced study		
Previous knowledge	1. Semester: Fundamentals of academic work & communication / 2. Semester: Fundamentals of academic work at bachelor's level / 3. Semester: Research methods from the bachelor's program or from another piece of academic work / 4. Semester: Colloquium on the Master's Thesis / 4. Semester: Scientific Communication		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Colloquium on the Master's Thesis - Preparation for Publication & Defense /SE / LV-Nr: SCI / 4.Semester / ECTS: 2</u> - American psychological association (Ed.). (2020). Publication manual of the American psychological association: The official guide to APA style (7th ed).		
	<u>Scientific Communication (E) /ILV / LV-Nr: SCI.1 / 1.Semester / ECTS: 2</u> - Daevicius, R. (2025). Human-Centered Scientific Data Cuiusalisation: Making complex data accessible for everyone. Springer. - Hey, B. (2024). Mastering Scientific Presentations: Unlocking Your Communication Skills. Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-44184-5 - Murphy, L., & Alley, M. (2023). The Craft of Scientific Films: How to Make Videos of Your Laboratory, Research, or Technical Projects. Springer International Publishing. https://doi.org/10.1007/978-3-031-25645-5		
	<u>Master's Research Seminar 1 - Research Question /SE / LV-Nr: SCI.2 / 2.Semester / ECTS: 3</u> - American Psychological Association (Washington, District of Columbia) (Ed.). (2020). Publication manual of the American psychological association (Seventh edition).		
	<u>Master's Research Seminar 2 - Research Design & Methodology /SE / LV-Nr: SCI.3 / 3.Semester / ECTS: 1</u> - American psychological association (Ed.). (2020). Publication manual of the American psychological association: The official guide to APA style (7th ed). American psychological association.		
	<u>Master's Thesis /ILV / LV-Nr: SCI.5 / 4.Semester / ECTS: 22</u> - American psychological association (Ed.). (2020). Publication manual of the American psychological association: The official guide to APA style (7th ed).		
Acquisition of skills	<u>Colloquium on the Master's Thesis - Preparation for Publication & Defense /SE / LV-Nr: SCI / 4.Semester / ECTS: 2</u> The participants: • analyze scientific publication and presentation formats and assess their suitability for presenting their own research. • develop an audience-appropriate scientific presentation of their master's thesis and formulate clear scientific contributions. • design a professional defense presentation and argue their research findings clearly, consistently and in a discursive manner.		
	<u>Scientific Communication (E) /ILV / LV-Nr: SCI.1 / 1.Semester / ECTS: 2</u> The participants: • analyze complex specialist content and prepare it for different target groups in a clear, audience-appropriate and impact-oriented way. • design professional formats of science communication and evaluate their impact. • develop compelling storytelling strategies for science-related topics and deploy narrative techniques purposefully in written and oral communication. • structure data, arguments and specialist content in a media-appropriate way and visualize them using suitable digital tools. • assess communicative challenges and make well-founded decisions regarding clarity, transparency and ethical responsibility in science communication.		
	<u>Master's Research Seminar 1 - Research Question /SE / LV-Nr: SCI.2 / 2.Semester / ECTS: 3</u>		

	The participants: • analyze a complex specialist problem area and identify research-relevant gaps as well as theoretical and practical points of reference. • formulate a precise, testable and theory-based research question at master's level and justify its scientific relevance. • develop a suitable conceptual approach and structure key concepts, variables and theoretical references for the planned research project. • assess the feasibility of the research project, taking into account data access, methodology, timeline and ethical framework conditions. • present their research question and project plan in an audience-appropriate way and reflect on specialist feedback in order to optimize the research design.
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Acquisition of skills	<u>Master's Research Seminar 2 - Research Design & Methodology /SE / LV-Nr: SCI.3 / 3.Semester / ECTS: 1</u> The participants: • analyze different scientific research designs and methods and assess their suitability with regard to their own research question. • develop a consistent research design for their master's thesis that coherently links the research question, objective, methodology and data basis. • structure methodological approaches and justify them on the basis of scientific criteria. • evaluate ethical, scientific and practical challenges of their design and formulate measures for quality assurance. • argue for their research design in a peer discussion and reflect on feedback for the methodological further development.
	<u>Master's Thesis /ILV / LV-Nr: SCI.5 / 4.Semester / ECTS: 22</u> The participants: • analyze complex specialist, methodological and scientific problems within their research field and derive a precise research question together with a theoretical frame of reference. • develop a robust research design and justify the choice of methods and of data collection and analysis procedures on the basis of scientific quality criteria. • collect, structure and assess empirical data or literature and theory materials and synthesize valid scientific findings from them. • produce a logically structured, linguistically precise and scientifically grounded master's thesis and argue the results reflectively with regard to their scientific and practical contribution. • evaluate the quality, limitations and transferability of their research and formulate recommendations for action as well as starting points for further research. • present and defend their research work convincingly, in a discursive and audience-appropriate manner, within the framework of the final examination.
Course contents	<u>Colloquium on the Master's Thesis - Preparation for Publication & Defense /SE / LV-Nr: SCI / 4.Semester / ECTS: 2</u> - Scientific dissemination - Scientific presentation skills - Publication ethics & quality assurance
	<u>Scientific Communication (E) /ILV / LV-Nr: SCI.1 / 1.Semester / ECTS: 2</u> - Fundamentals of professional scientific communication and principles of clear, accessible presentation - Audience-oriented writing and presenting for expert and non-expert audiences - Storytelling methods for the structured and narrative preparation of complex content - Design and analysis of media formats - Visualization of data and arguments using digital tools - Communication ethics, transparency and responsibility in conveying science-related topics
	<u>Master's Research Seminar 1 - Research Question /SE / LV-Nr: SCI.2 / 2.Semester / ECTS: 3</u> - Identification of relevant research fields and derivation of a precise master's thesis research question - Structuring of theoretical foundations and definition of key concepts and variables - Development of an initial research design including method selection and feasibility - Analysis of data and source availability as well as ethical and organizational framework conditions - Discussion and presentation of the planned master's thesis project
	<u>Master's Research Seminar 2 - Research Design & Methodology /SE / LV-Nr: SCI.3 / 3.Semester / ECTS: 1</u> - Methodological grounding - Quality criteria of empirical research - Methodological risks & bias in research - Presentation and peer discussion of the research design
	<u>Master's Thesis /ILV / LV-Nr: SCI.5 / 4.Semester / ECTS: 22</u> - Preparation of the master's thesis - Scientific writing & argumentation - Preparation for the final examination
Teaching and learning methods	<u>Colloquium on the Master's Thesis - Preparation for Publication & Defense /SE / LV-Nr: SCI / 4.Semester / ECTS: 2</u> Lectures, discussions, presentation
	<u>Scientific Communication (E) /ILV / LV-Nr: SCI.1 / 1.Semester / ECTS: 2</u> Lectures, discussions, exercises, case studies, group work
	<u>Master's Research Seminar 1 - Research Question /SE / LV-Nr: SCI.2 / 2.Semester / ECTS: 3</u>

	Lectures, discussions, exercises, case studies, group work
	<u>Master's Research Seminar 2 - Research Design & Methodology /SE / LV-Nr: SCI.3 / 3.Semester / ECTS: 1</u>
	Lectures, discussions, presentation
	<u>Master's Thesis /ILV / LV-Nr: SCI.5 / 4.Semester / ECTS: 22</u>
Evaluation Methods Criteria	Master's thesis, presentation, final examination
	<u>Colloquium on the Master's Thesis - Preparation for Publication & Defense /SE / LV-Nr: SCI / 4.Semester / ECTS: 2</u>
	Attendance
	<u>Scientific Communication (E) /ILV / LV-Nr: SCI.1 / 1.Semester / ECTS: 2</u>
	Portfolio examination
	<u>Master's Research Seminar 1 - Research Question /SE / LV-Nr: SCI.2 / 2.Semester / ECTS: 3</u>
	Term paper Presentation

Evaluation Methods Criteria	<u>Master's Research Seminar 2 - Research Design & Methodology /SE / LV-Nr: SCI.3 / 3.Semester / ECTS: 1</u> Term paper Presentation
	<u>Master's Thesis /ILV / LV-Nr: SCI.5 / 4.Semester / ECTS: 22</u> Master's thesis

Module number:	Circular Economy, Bioeconomy, and Regenerative Systems	Scope:	
CIR		5	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	2. Semester		
Level	2. Semester: Introduction & advanced study		
Previous knowledge	2. Semester: Fundamentals of sustainability management		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Circular Economy, Bioeconomy and Regenerative Systems /ILV / LV-Nr: CIR / 2.Semester / ECTS: 5</u> - Fet, A. M. (Ed.). (2023). Business Transitions: A Path to Sustainability: The CapSEM Model. Springer International Publishing. https://doi.org/10.1007/978-3-031-22245-0 - Fischer, M., Foord, D., Freccà, J., Hillebrand, K., Kissling-Näf, I., Meili, R., Peskova, M., Risi, D., Schmidpeter, R., & Stucki, T. (2023). Sustainable Business: Managing the Challenges of the 21st Century. Springer International Publishing. https://doi.org/10.1007/978-3-031-25397-3 - Lehtimäki, H., Aarikka-Stenroos, L., Jokinen, A., & Jokinen, P. (Eds). (2024). The Routledge handbook of catalysts for a sustainable circular economy. Routledge, Taylor & Francis Group. - Lewandowski, I., Gaudet, N., Lask, J., Maier, J., Tchouga, B., & Vargas-Carpintero, R. (Eds). (2018). Bioeconomy: Shaping the transition to a sustainable, biobased economy (1st edition 2018). Springer Open. https://doi.org/10.1007/978-3-319-68152-8 - Mavropoulos, A., & Nilsen, A. W. (2020). Industry 4.0 and circular economy: Towards a wasteless future or a wasteful planet? Wiley. - Thrän, D., & Moesenfechtel, U. (Eds). (2022). The bioeconomy system. Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-662-64415-7 - Weetman, C. (2021). A circular economy handbook: How to build a more resilient, competitive and sustainable business (Second edition). Kogan Page.		
Acquisition of skills	<u>Circular Economy, Bioeconomy and Regenerative Systems /ILV / LV-Nr: CIR / 2.Semester / ECTS: 5</u> The participants: • analyze concepts and principles of the circular economy and the bioeconomy and critically assess their ecological, economic and social interactions. • characterize and evaluate models of regenerative systems and derive their significance for sustainable transformation processes in a comprehensible way. • examine material and value chains with regard to resource efficiency and circularity and develop optimization options. • model systemic relationships between natural and technical cycles and translate them into integrated transformation approaches. • reflect on the potentials and limitations of circular and bio-based economic models and discuss trade-offs between sustainability, economic viability and social acceptance.		
Course contents	<u>Circular Economy, Bioeconomy and Regenerative Systems /ILV / LV-Nr: CIR / 2.Semester / ECTS: 5</u> - Concepts and principles of the circular economy and the bioeconomy - Regenerative systems and their role in sustainable transformation processes - Material and value chains in the context of resource efficiency and circularity - Systemic relationships between natural and technical cycles - Potentials, limitations and trade-offs of circular and bio-based economic models - Modeling and assessment of circular and regenerative systems approaches		
Teaching and learning methods	<u>Circular Economy, Bioeconomy and Regenerative Systems /ILV / LV-Nr: CIR / 2.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work, field trip		
Evaluation Methods Criteria	<u>Circular Economy, Bioeconomy and Regenerative Systems /ILV / LV-Nr: CIR / 2.Semester / ECTS: 5</u> Portfolio examination		

Module number:	Data Analytics & Modeling	Scope:	
DAT		4	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	2. Semester		
Level	2. Semester: Advanced study		
Previous knowledge	2. Semester: Fundamentals of statistics & data management from the bachelor's program; basic knowledge of digital tools		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Data Analytics & Modeling (E) /ILV / LV-Nr: DAT / 2.Semester / ECTS: 4</u> - De Wolf, C., Çetin, S., & Bocken, N. M. P. (Eds). (2024). A Circular Built Environment in the Digital Age. Springer International Publishing. https://doi.org/10.1007/978-3-031-39675-5 - Garg, V., Goel, R., Tiwari, P., & Döngül, E. S. (2024). Handbook of Artificial Intelligence Applications for Industrial Sustainability: Concepts and Practical Examples (1st edn). CRC Press. https://doi.org/10.1201/9781003348351 - Heath, C., & Starr, K. (2022). Making numbers count: The art and science of communicating numbers (First Avid Reader Press hardcover edition). Avid Reader Press. - Viceconti, M., & Emili, L. (Eds). (2024). Toward Good Simulation Practice: Best Practices for the Use of Computational Modeling and Simulation in the Regulatory Process of Biomedical Products. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-48284-7		
Acquisition of skills	<u>Data Analytics & Modeling (E) /ILV / LV-Nr: DAT / 2.Semester / ECTS: 4</u> The participants: • analyze large, heterogeneous data volumes from energy & sustainability management contexts and identify relevant patterns, anomalies and relationships. • assess big data architectures as well as data quality and data integration processes with regard to their suitability for strategic decisions in energy & sustainability management. • model forecasts, clusters or scenarios using advanced analytical methods and design data-based decision models for complex questions. • reflect on ethical, data protection and organizational challenges of data-driven decision-making processes and develop guidelines for the responsible use of big data.		
Course contents	<u>Data Analytics & Modeling (E) /ILV / LV-Nr: DAT / 2.Semester / ECTS: 4</u> - Big data fundamentals in energy & sustainability management - Data quality, data governance, ETL processes and data pipelines - Exploratory data analysis & feature engineering for large data volumes - Modeling methods - Big data tools & ecosystems		
Teaching and learning methods	<u>Data Analytics & Modeling (E) /ILV / LV-Nr: DAT / 2.Semester / ECTS: 4</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Data Analytics & Modeling (E) /ILV / LV-Nr: DAT / 2.Semester / ECTS: 4</u> Portfolio examination		

Module number:	Innovation Management	Scope:	
INM		4	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	2. Semester		
Level	2. Semester: Introduction & advanced study		
Previous knowledge	2. Semester: Fundamentals of sustainability, strategy, communication and technology		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Innovation Management /ILV / LV-Nr: INM / 2.Semester / ECTS: 4</u> - Dodgson, M., Gann, D., & Phillips, N. (2014). The Oxford handbook of innovation management. Oxford university press. - Tidd, J., & Bessant, J. R. (2014). Strategic innovation management. Wiley. - Tidd, J., & Bessant, J. R. (2025). Managing innovation: Integrating technological, market and organizational change (Eighth edition). Wiley. - Trott, P. (2021). Innovation management and new product development (Seventh Edition). Pearson.		
Acquisition of skills	<u>Innovation Management /ILV / LV-Nr: INM / 2.Semester / ECTS: 4</u> The participants: • analyze innovation processes, drivers and barriers in organizations as well as their significance for sustainable energy and transformation systems. • assess innovation models and methods with regard to their suitability for sustainable business and supply concepts. • develop innovation-oriented solutions for complex challenges in energy and sustainability management. • examine organizational, cultural and market-related framework conditions for successful innovation and derive recommendations for action. • design structured innovation processes and reflect on their effectiveness in the context of strategic corporate development.		
Course contents	<u>Innovation Management /ILV / LV-Nr: INM / 2.Semester / ECTS: 4</u> - Fundamentals and models of innovation management - Processes, drivers and barriers of organizational innovation - Methods and approaches for sustainable and transformative innovation - Assessment of technologies, business models and market opportunities - Innovation culture, leadership and organizational framework conditions - Strategic integration of innovation into sustainable corporate development		
Teaching and learning methods	<u>Innovation Management /ILV / LV-Nr: INM / 2.Semester / ECTS: 4</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Innovation Management /ILV / LV-Nr: INM / 2.Semester / ECTS: 4</u> Portfolio examination		

Module number:	Collaborative Leadership & Mediation	Scope:	
MED		3	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	2. Semester		
Level	2. Semester: Introduction & advanced study		
Previous knowledge	2. Semester: Fundamentals of communication & leadership		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Collaborative Leadership & Mediation (E) /ILV / LV-Nr: MED / 2.Semester / ECTS: 3</u> - Busch, D. (Ed.). (2023). The Routledge handbook of intercultural mediation. Routledge. https://doi.org/10.4324/9781003227441 - Landier, H. (2024). Mediation and Transdisciplinarity: Navigating Conflicts in Times of Crisis. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-78405-7 - Schienle, W., & Steinborn, A. (2025). Psychological Conflict Management: Professional Tools for Specialists and Managers. Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-47281-8		
Acquisition of skills	<u>Collaborative Leadership & Mediation (E) /ILV / LV-Nr: MED / 2.Semester / ECTS: 3</u> The participants: • analyze conflict structures and HRM-related fields of conflict in organizational contexts and assess their effects on teams and leadership situations. • develop mediative intervention strategies and deploy suitable methods of conflict facilitation professionally. • design collaborative leadership processes and steer decision-making and communication processes in heterogeneous teams. • select appropriate conversation-management and de-escalation techniques and conduct mediation and clarification talks in a structured manner. • assess ethical, legal and organizational framework conditions of mediation-oriented HRM practice and make well-founded decisions in demanding leadership situations.		
Course contents	<u>Collaborative Leadership & Mediation (E) /ILV / LV-Nr: MED / 2.Semester / ECTS: 3</u> - Mediation in an organizational context - HRM-related fields of conflict - Methods of collaborative leadership - Mediative intervention techniques - Facilitation methods for conflict situations		
Teaching and learning methods	<u>Collaborative Leadership & Mediation (E) /ILV / LV-Nr: MED / 2.Semester / ECTS: 3</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Collaborative Leadership & Mediation (E) /ILV / LV-Nr: MED / 2.Semester / ECTS: 3</u> Portfolio examination		

Module number:	System Resilience & Climate Adaptation Strategies	Scope:	
CAR		4	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Advanced study		
Previous knowledge	3. Semester: Fundamentals of sustainability, transformation, risk management		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>System Resilience & Climate Adaptation Strategies /ILV / LV-Nr: CAR / 3.Semester / ECTS: 4</u> - Choudhury, M., Dixit, G., & Majumdar, S. (Eds). (2025). Sustainable Synergy: Harnessing Ecosystems for Climate Resilience. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-77957-2 - Korneykova, M., Vasenev, V., Dovletyarova, E., Valentini, R., Gunina, A., Poddubsky, A., & Cheng, Z. (Eds). (2025). Green Infrastructure and Climate Resilience: Proceedings of Smart and Sustainable Cities 2024. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-95796-3 - Qi, J. (2023). Smart Grid Resilience: Extreme Weather, Cyber-Physical Security, and System Interdependency. Springer International Publishing. https://doi.org/10.1007/978-3-031-29290-3 - Skillington, T., & Setti, A. (Eds). (2025). Climate Change Resilience Across Societal Contexts: Challenges, Potentials and Visions for the Future. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-95020-9 - Thomas, V. (2024). Risk and Resilience in the Era of Climate Change. Springer Nature Singapore. https://doi.org/10.1007/978-981-97-2769-8		
Acquisition of skills	<u>System Resilience & Climate Adaptation Strategies /ILV / LV-Nr: CAR / 3.Semester / ECTS: 4</u> The participants: • transfer and assess principles and concepts of system resilience to ecological, economic and social systems and analyze their applicability in different contexts. • identify, analyze and integrate climate risks and vulnerabilities into decision-making processes in order to derive well-founded risk and adaptation strategies. • conceive and develop adaptive climate adaptation strategies and measures that integrate ecological, social and economic dimensions and make them assessable. • model systemic interactions between climate, society and infrastructure and derive robust recommendations for action for various groups of actors. • design governance and management approaches to foster resilient systems and reflectively assess their effectiveness in the context of sustainability transformations.		
Course contents	<u>System Resilience & Climate Adaptation Strategies /ILV / LV-Nr: CAR / 3.Semester / ECTS: 4</u> - Principles of system resilience in ecological, economic and social systems - Identification and analysis of climate risks, vulnerabilities and exposures - Development of adaptive climate adaptation strategies and measures - Systemic modeling of interactions between climate, society and infrastructure - Risk and adaptation assessment based on scientific indicators and scenarios - Governance and management approaches for resilient systems - Strategic decision-making under uncertainty and trade-offs - Effectiveness and transformation analysis of resilience and adaptation measures		
Teaching and learning methods	<u>System Resilience & Climate Adaptation Strategies /ILV / LV-Nr: CAR / 3.Semester / ECTS: 4</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>System Resilience & Climate Adaptation Strategies /ILV / LV-Nr: CAR / 3.Semester / ECTS: 4</u> Portfolio examination		

Module number:	Innovative Energy Concepts	Scope:	
IEK		4	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Advanced study		
Previous knowledge	3. Semester: Fundamentals of energy technologies		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Innovative Energy Concepts /ILV / LV-Nr: IEK / 3.Semester / ECTS: 4</u> - Das, L. M. (2024). Hydrogen energy: Production, safety, storage and applications. Wiley. - Labriet, M., Espehren, K., Giannakidis, G., & Ó Gallachóir, B. (Eds). (2024). Aligning the Energy Transition with the Sustainable Development Goals: Key Insights from Energy System Modeling (Vol. 101). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-58897-6 - Lovell, H. (2022). Understanding Energy Innovation: Learning from Smart Grid Experiments. Springer Singapore. https://doi.org/10.1007/978-981-16-6253-9 - Momoh, J. A. (2012). Smart grid: Fundamentals of design and analysis. Wiley. - Quitzow, R., & Zabanova, Y. (Eds). (2024). The Geopolitics of Hydrogen: Volume 1: European Strategies in Global Perspective. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-59515-8 - Weijnen, M. P. C., Lukszo, Z., & Farahani, S. (Eds). (2021). Shaping an Inclusive Energy Transition. Springer International Publishing. https://doi.org/10.1007/978-3-030-74586-8 - Zhou, K., & Wen, L. (2022). Smart Energy Management: Data Driven Methods for Energy Service Innovation. Springer Singapore. https://doi.org/10.1007/978-981-16-9360-1		
Acquisition of skills	<u>Innovative Energy Concepts /ILV / LV-Nr: IEK / 3.Semester / ECTS: 4</u> The participants: • analyze the conceptual, technological and systemic foundations of innovative energy and supply concepts. • assess technological options taking into account technical, ecological and economic criteria. • examine interactions between digitalization, flexibility markets and decentralized technologies and derive innovation potentials from them. • evaluate barriers to transformation and implementation and formulate evidence-based recommendations.		
Course contents	<u>Innovative Energy Concepts /ILV / LV-Nr: IEK / 3.Semester / ECTS: 4</u> - Technological and systemic deepening of innovative energy concepts - Selected innovative energy concepts such as sector coupling, power-to-X approaches, decentralized energy supply, smart energy systems, energy storage technologies, and data and automation potentials - Innovation pathways in the context of renewable and hybrid supply systems		
Teaching and learning methods	<u>Innovative Energy Concepts /ILV / LV-Nr: IEK / 3.Semester / ECTS: 4</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Innovative Energy Concepts /ILV / LV-Nr: IEK / 3.Semester / ECTS: 4</u> Portfolio examination		

Module number:	International Urban & Community Project Development	Scope:	
INW		2	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Advanced study		
Previous knowledge	3. Semester: Fundamentals of project management, sustainability & energy		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>International Urban & Community Development Project (E) /PT / LV-Nr: INW / 3.Semester / ECTS: 2</u> The literature is selected for the specific project topics and will be announced at the beginning or during the course of the project. It includes current scientific publications, case studies, international reports, and practice-oriented resources on sustainable urban and community development.		
Acquisition of skills	<u>International Urban & Community Development Project (E) /PT / LV-Nr: INW / 3.Semester / ECTS: 2</u> The participants: • develop innovative solutions for real-life problems in the field of sustainable urban & community development within an interdisciplinary team. • communicate and present project results in an audience-appropriate way in an international context. • reflect on team processes, cultural perspectives and their own role in interdisciplinary projects.		
Course contents	<u>International Urban & Community Development Project (E) /PT / LV-Nr: INW / 3.Semester / ECTS: 2</u> - Project work on real-life case examples taking into account economics and ESG criteria - Teamwork in interdisciplinary and intercultural groups - Development and presentation of an innovative project concept		
Teaching and learning methods	<u>International Urban & Community Development Project (E) /PT / LV-Nr: INW / 3.Semester / ECTS: 2</u> Project & problem-based learning		
Evaluation Methods Criteria	<u>International Urban & Community Development Project (E) /PT / LV-Nr: INW / 3.Semester / ECTS: 2</u> Portfolio examination		

Module number:	Energy & Environmental Law	Scope:	
LAW		4	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Introduction & advanced study		
Previous knowledge	3. Semester: Fundamentals of law		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Energy & Environmental Law /ILV / LV-Nr: LAW / 3.Semester / ECTS: 4</u> - Mathis, K., & Huber, B. R. (Eds). (2018). Energy Law and Economics. Springer International Publishing. https://doi.org/10.1007/978-3-319-74636-4 - Versolmann, I. (2025). The development of energy policy in the European Union: Continuity, critical junctures and change. Routledge. https://doi.org/10.4324/9781003298403		
Acquisition of skills	<u>Energy & Environmental Law /ILV / LV-Nr: LAW / 3.Semester / ECTS: 4</u> The participants: • analyze key regulatory frameworks of energy and environmental law and assign them to relevant market and system areas. • assess regulatory instruments with regard to their effectiveness and their effects on energy markets, companies and transformation. • develop legally sound recommendations for action for organizations in energy and sustainability contexts. • examine governance structures, participant roles and compliance requirements and derive strategic organizational and risk-related consequences. • reflect on trade-offs between climate protection, economic viability, legal certainty and social acceptance and discuss their significance for sustainable transformation.		
Course contents	<u>Energy & Environmental Law /ILV / LV-Nr: LAW / 3.Semester / ECTS: 4</u> - Fundamentals of energy & environmental law - Regulatory instruments & legal framework conditions for renewable energy, grids and energy efficiency - Environmental legal standards, permitting procedures and compliance requirements - Interfaces between energy law, market mechanisms and corporate strategies - Governance, participant roles and responsibilities in energy & environmental law - Legal risks, fields of conflict and transformative challenges		
Teaching and learning methods	<u>Energy & Environmental Law /ILV / LV-Nr: LAW / 3.Semester / ECTS: 4</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Energy & Environmental Law /ILV / LV-Nr: LAW / 3.Semester / ECTS: 4</u> Portfolio examination		

Module number:	Innovative Mobility Concepts	Scope:	
MOB		3	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Introduction & advanced study		
Previous knowledge	3. Semester: Fundamentals of energy technologies		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Innovative Mobility Concepts /ILV / LV-Nr: MOB / 3.Semester / ECTS: 3</u> - Janasz, T. (2018). Paradigm Shift in Urban Mobility: Towards Factor 10 of Automobility. Springer Gabler. https://doi.org/10.1007/978-3-658-20460-0 - Schwabe, P. (2021). Comparison of Alternative Mobility Concepts. LAP LAMBERT ACADEMIC PUBL. - Shaheen, S. (2018). Shared Mobility: The Potential of Ridehailing and Pooling. In D. Sperling (Ed.), Three Revolutions (pp. 55–76). Island Press/Center for Resource Economics. https://doi.org/10.5822/978-1-61091-906-7_3 - United Nations Economic Commission for Europe. (2020). A Handbook on Sustainable Urban Mobility and Spatial Planning: Promoting Active Mobility. United Nations. https://doi.org/10.18356/8d742f54-en		
Acquisition of skills	<u>Innovative Mobility Concepts /ILV / LV-Nr: MOB / 3.Semester / ECTS: 3</u> The participants: • analyze current and future mobility systems as well as their ecological, economic and social interactions. • assess innovative mobility solutions with regard to sustainability, energy efficiency and system integration. • develop conceptual approaches for sustainable mobility options in companies, municipalities or regions. • reflect on barriers to transformation, user behavior and regulatory framework conditions and derive options for improvement.		
Course contents	<u>Innovative Mobility Concepts /ILV / LV-Nr: MOB / 3.Semester / ECTS: 3</u> - Fundamentals of sustainable and multimodal mobility systems - Electromobility, charging infrastructure and energy system integration - Sharing models, mobility-as-a-service and new mobility services - Autonomous and digitally connected mobility - Barriers to transformation - Mobility concepts for companies, cities and regions		
Teaching and learning methods	<u>Innovative Mobility Concepts /ILV / LV-Nr: MOB / 3.Semester / ECTS: 3</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Innovative Mobility Concepts /ILV / LV-Nr: MOB / 3.Semester / ECTS: 3</u> Portfolio examination		

Module number:	Integrated Building Design & Energy Simulation	Scope:	
SBD		5	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Introduction & advanced study		
Previous knowledge	3. Semester: Fundamentals of energy technologies		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Integrated Building Design & Energy Simulation /ILV / LV-Nr: SBD / 3.Semester / ECTS: 5</u> - Alavi, H., Kookalani, S., Rahimian, F., & Forcada, N. (2024). Integrated Building Intelligence (1st ed. 2024). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-68865-2 - Brackney, L., Parker, A., Macumber, D., & Benne, K. (2018). Building Energy Modeling with OpenStudio: A Practical Guide for Students and Professionals. Springer International Publishing. https://doi.org/10.1007/978-3-319-77809-9 - Chen, H., Yan, H., & He, G. (2025). Integrated Energy System Modeling and Simulation (1st ed. 2025). Springer Nature Singapore. https://doi.org/10.1007/978-981-96-0373-2 - Dabija, A.-M. (2024). Architectural Design Strategies for Saving Energy in Buildings: An Architect's View. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-73541-7 - Hensen, J., & Lamberts, R. (Eds). (2019). Building performance simulation for design and operation (Second edition). Routledge. https://doi.org/10.1201/9780429402296 - Stevanovic, S. (2022). Overhang Design Methods: Optimal Thermal and Daylighting Performance (1st ed). Springer.		
Acquisition of skills	<u>Integrated Building Design & Energy Simulation /ILV / LV-Nr: SBD / 3.Semester / ECTS: 5</u> The participants: • analyze building services, building physics and energy-related relationships as well as their relevance for sustainable building and neighborhood concepts. • assess different planning, energy and supply concepts with regard to efficiency, economic viability, CO2 impact and system integration. • make strategic decisions within the framework of integrated building design, taking into account digital models and energy simulation results. • examine factors influencing building energy demand and performance and derive optimization approaches for sustainable building and operating concepts. • reflect on the opportunities and limitations of energy simulations as well as their significance for decision-making, planning and investment processes.		
Course contents	<u>Integrated Building Design & Energy Simulation /ILV / LV-Nr: SBD / 3.Semester / ECTS: 5</u> - Fundamentals of integrated building design and sustainable building physics - Energy simulation - Building energy demand, load profiles and performance analysis - Planning and assessment of energy-efficient building and supply concepts - Optimization of energy and operating concepts across the life cycle - Strategic decision-making processes based on simulation results		
Teaching and learning methods	<u>Integrated Building Design & Energy Simulation /ILV / LV-Nr: SBD / 3.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Integrated Building Design & Energy Simulation /ILV / LV-Nr: SBD / 3.Semester / ECTS: 5</u> Portfolio examination		

Module number:	Sustainability, Governance & Risikocontrolling	Scope:	
SGR		5	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Advanced study		
Previous knowledge	3. Semester: Fundamentals of sustainability, corporate management, risk		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Sustainability, Governance & Risk Controlling /ILV / LV-Nr: SGR / 3.Semester / ECTS: 5</u> - Çaliyurt, K. T. (Ed.). (2022). New Approaches to CSR, Sustainability and Accountability, Volume III. Springer Nature Singapore. https://doi.org/10.1007/978-981-16-9364-9 - Dathe, T., Dathe, R., Dathe, I., & Helmold, M. (2022). Corporate Social Responsibility (CSR), Sustainability and Environmental Social Governance (ESG): Approaches to Ethical Management. Springer International Publishing. https://doi.org/10.1007/978-3-030-92357-0 - Ibidapo, T. A. (2022). From Industry 4.0 to Quality 4.0: An Innovative TQM Guide for Sustainable Digital Age Businesses. Springer International Publishing. https://doi.org/10.1007/978-3-031-04192-1 - Kandpal, V., Jaswal, A., Santibanez Gonzalez, E. D. R., & Agarwal, N. (2024). Sustainable Energy Transition: Circular Economy and Sustainable Financing for Environmental, Social and Governance (ESG) Practices. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-52943-6 - Klos, Z. S., Kalkowska, J., & Kasprzak, J. (Eds.). (2022). Towards a Sustainable Future - Life Cycle Management: Challenges and Prospects. Springer International Publishing. https://doi.org/10.1007/978-3-030-77127-0 - Sonnemann, G., & Margni, M. (Eds.). (2015). Life Cycle Management. Springer Netherlands. https://doi.org/10.1007/978-94-017-7221-1 - Touriki, F. E., Belhadi, A., Kamble, S., & Benkhati, I. (2022). Sustainable Excellence in Small and Medium Sized Enterprises: Continuous Improvement Approaches that Matter. Springer Singapore. https://doi.org/10.1007/978-981-19-0371-7 - Zipse, O., Hornegger, J., Becker, T., Beckmann, M., Bengsch, M., Feige, I., & Schober, M. (Eds.). (2023). Road to Net Zero: Strategic Pathways for Sustainability-Driven Business Transformation. Springer International Publishing. https://doi.org/10.1007/978-3-031-42224-9		
Acquisition of skills	<u>Sustainability, Governance & Risk Controlling /ILV / LV-Nr: SGR / 3.Semester / ECTS: 5</u> The participants: • identify, interpret and integrate compliance requirements in the environmental and sustainability context into management and reporting processes in order to ensure regulatory and ethical standards. • capture, assess and interpret sustainability metrics as well as environmental and social indicators using methods of sustainability assessment, life cycle assessment (LCA) and ESG analyzes. • develop integrated strategies for sustainability and risk management that make ecological, social and economic aspects manageable and assessable. • formulate integrative management approaches that purposefully combine governance, sustainability, controlling and risk management in order to foster resilient organizational processes. • design reporting systems and decision-making foundations based on qualitative and quantitative indicators that enable transparent sustainability communication.		
Course contents	<u>Sustainability, Governance & Risk Controlling /ILV / LV-Nr: SGR / 3.Semester / ECTS: 5</u> - Compliance requirements and regulatory framework conditions in the sustainability context - Sustainability metrics, environmental and social indicators as well as ESG analysis approaches - Methods of sustainability assessment and life cycle assessment (LCA) - Design of integrated sustainability and risk management strategies - Governance and accountability systems for sustainable corporate management - Linking sustainability, controlling and risk management - Design of sustainability and risk reporting systems		
Teaching and learning methods	<u>Sustainability, Governance & Risk Controlling /ILV / LV-Nr: SGR / 3.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Sustainability, Governance & Risk Controlling /ILV / LV-Nr: SGR / 3.Semester / ECTS: 5</u> Portfolio examination		

Module number:	Innovation, Business & Research Transfer	Scope:	
IBR		3	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	4. Semester		
Level	4. Semester: Advanced study		
Previous knowledge	4. Semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Innovation, Business & Research Transfer /ILV / LV-Nr: IBR / 4.Semester / ECTS: 3</u> aktuelle wissenschaftliche Publikationen sowie praxisorientierte Beiträge aus Fachzeitschriften, Reports, Fallstudien, Verbandsunterlagen		
Acquisition of skills	<u>Innovation, Business & Research Transfer /ILV / LV-Nr: IBR / 4.Semester / ECTS: 3</u> The participants: • identify and place current developments and innovation impulses from academia, industry and research within the context of energy & sustainability management. • analyze examples from practice and research with regard to their relevance and transferability to professional questions. • reflect on the significance of research, innovation and interdisciplinary exchange for their own professional development. • transfer selected insights into application-oriented ideas, strategies or improvement proposals for practice.		
Course contents	<u>Innovation, Business & Research Transfer /ILV / LV-Nr: IBR / 4.Semester / ECTS: 3</u> Students gain insights into current topics, developments and research findings in energy & sustainability management. Various experts from academia, industry and research provide practice-oriented impulses on questions of innovation and transfer. The content is explored in greater depth through moderated discussions, fireside chats or field trips and reflected on with regard to its significance for professional practice. Topics covered include, among others: - current innovation and research trends in the industry - examples of successful corporate and research collaborations - approaches to knowledge and technology transfer - digital transformation processes in the energy sector and in sustainability management - reflection on one's own learning and transfer processes in a professional context		
Teaching and learning methods	<u>Innovation, Business & Research Transfer /ILV / LV-Nr: IBR / 4.Semester / ECTS: 3</u> Lectures, discussions, case studies, field trips		
Evaluation Methods Criteria	<u>Innovation, Business & Research Transfer /ILV / LV-Nr: IBR / 4.Semester / ECTS: 3</u> Attendance		

Module number:	Study Trip & International Experience	Scope:	
STP		3	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management part-time		
Position in the curriculum	4. Semester		
Level	4. Semester: Advanced study		
Previous knowledge	4. Semester: all modules from the 1st to the 4th semester		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Study Trip & International Experience (E) /ILV / LV-Nr: STP / 4.Semester / ECTS: 3</u> - Jones, E. L. (2006). Cultures Merging: A Historical and Economic Critique of Culture. Princeton, NJ: Princeton University Press. - Thomas, A. (Ed.). (2003). Handbuch Interkulturelle Kommunikation und Kooperation: Band 1 – Grundlagen und Praxisfelder (1st ed.). Göttingen, Germany: Vandenhoeck & Ruprecht. - Thomas, A. (Ed.). (2003). Handbuch Interkulturelle Kommunikation und Kooperation: Band 2 – Anwendungsfelder und Praxis der interkulturellen Kommunikation (1st ed.). Göttingen, Germany: Vandenhoeck & Ruprecht.		
Acquisition of skills	<u>Study Trip & International Experience (E) /ILV / LV-Nr: STP / 4.Semester / ECTS: 3</u> The participants: • analyze and compare international best practices in energy & sustainability management with regard to sustainability, digitalization and operational organization. • assess different concepts, products and services in the energy & sustainability management context. • reflect on intercultural communication and cooperation processes in a professional environment. • document and present the insights from the field trip in a structured specialist report applying scientific working methods. • transfer international perspectives to local challenges in their own professional practice.		
Course contents	<u>Study Trip & International Experience (E) /ILV / LV-Nr: STP / 4.Semester / ECTS: 3</u> - Preparation for the study trip: thematic and organizational planning - In-depth study of international energy & sustainability management - Visits to companies, projects, trade fairs or universities in the destination country - Specialist discussions with practitioners, authorities, project developers or research institutions - Observation of international management and sustainability strategies - Intercultural communication and professional conduct in an international context - Follow-up: presentation of results, reflection and transfer into the studies		
Teaching and learning methods	<u>Study Trip & International Experience (E) /ILV / LV-Nr: STP / 4.Semester / ECTS: 3</u> Lectures, discussions, group work, study trip		
Evaluation Methods Criteria	<u>Study Trip & International Experience (E) /ILV / LV-Nr: STP / 4.Semester / ECTS: 3</u> Attendance		

3 ADMISSION REQUIREMENTS

The general admission requirements are governed by § 4 FHG, as amended; accordingly, the subject-specific admission requirement for a master's program at a university of applied sciences is a completed bachelor's degree in a relevant field from a university of applied sciences or the completion of an equivalent program comprising at least 180 ECTS credits at a recognized domestic or foreign postsecondary educational institution.

1. For the purposes of this application, bachelor's degree programs or equivalent postsecondary educational qualifications in the social and economic sciences (based on ISCED 2013, Fields of Education and Training 03/04) are considered relevant if they cover the following core subject areas (based on ISCED 2013, Fields of Education and Training 031/032/041), covering a total of at least 30 ECTS credits:
 - 031 Social and Behavioral Sciences
 - 041 Economics and Public Administration
 - 042 Law
 - 0521 Environmental Sciences
 - 053 Physical Sciences
 - 054 Mathematics and Statistics
 - 058 Interdisciplinary Programs and Qualifications Involving the Natural Sciences, Mathematics, and Statistics
 - 061 Information and Communication Technologies
 - 071 Engineering Professions
 - 0722 Materials (glass, paper, plastics, and wood)
 - 0724 Mining and Extraction
 - 073 Architecture and Construction
 - 078 Interdisciplinary programs and qualifications that involve engineering, manufacturing, and construction

2. Kufstein University of Applied Sciences in Tyrol has designed its program structure to integrate bachelor's and master's programs in accordance with the Bologna Process: Upon successful completion of a bachelor's degree, graduates have several options for pursuing a master's degree both at and outside of Kufstein University of Applied Sciences in Tyrol. For this Master's program, graduates of the following degree programs at Kufstein University of Applied Sciences in Tyrol (regardless of the program's organizational structure) would be eligible for admission based on the aforementioned academic background:
 - Coding & Digital Design
 - Drone Engineering
 - Energy & Sustainability Management
 - Facility Management & Real Estate Management
 - Facility & Real Estate Management
 - International Business Management
 - Leadership & Business Management
 - Marketing & Communications Management
 - Sports, Culture, & Event Management
 - Industrial Engineering
 - Business Psychology & Management

3. The languages of instruction and examination at Kufstein University of Applied Sciences in Tyrol are German and English across all degree programs. Therefore, students from non-German-speaking countries must provide proof of German language proficiency.
4. For the full-time English-language program, the language of instruction and examination is 100% English. Therefore, proof of English proficiency at a minimum B2 level is required.
5. Verification of compliance with the admission requirements is the responsibility of the program director of the Master's program in Energy & Sustainability Management.