

Study regulations of the FH 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 FH Kufstein Tirol

Organizational form: full-time

Duration: 4 semesters

Scope: 120 ECTS

Places for beginners per academic year: 14 full-time (21 places
from the academic year 2027/28)

Version 1

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Approved by AQ Austria by decision of 12.02.2025

Start with study year 2025/26

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1 OCCUPATIONAL PROFILES

1.1 Occupational fields

The broad range of subjects covered by the qualification profile of the degree program opens up a wide variety of occupational fields to students. The following fields describe selected areas of work and tasks for which graduates of the degree program in Energy & Sustainability Management are qualified.

Strategic energy trading

The increasing trading volumes and the complexity of new business models point to the relevance of strategy development in international energy trading. In the course of strategic energy trading, the management of risks in the trading portfolio, the preparation of market reports and market forecasts, and the optimized marketing of power plant capacities are the most important areas of responsibility. Risk management deals with the diversification and monitoring of trading positions. The analytical evaluation of the different market segments, as well as a holistic view of the trading markets, enables the preparation of market reports and market forecasts. From this, graduates derive a procurement and trading strategy for the company in order to realize risk-minimized and cost-effective energy procurement. The marketing of supra-regional power plant capacities supports the diversification of trading risk. New emerging structures for the marketing of renewable energies with regulated subsidy instruments and the marketing of business models for regional energy communities and virtual power plants must be given particular consideration.

Strategic product development for energy and sustainability

Strategic product development is a key task for an energy supply company to expand its product range and develop into an energy service provider. Increasing digitization, the rising share of regional renewable power generation plants, and competition for end customers for the supply of electricity, gas, heat, cooling, and mobility are driving factors, including from an international perspective. Key aspects of this field of activity are the development of innovative and sustainable business models, as well as new products and financing models for customers, including in a global context. In addition to marketing new technical trends such as sector coupling and regional supply solutions, the professional field of product development in the energy industry and sustainability focuses on identifying the particular problems and needs of customers. Addressing these customer needs is frequently at the heart of promoting and marketing a product. Empathy for the customer and intuition for new market developments form the starting points for all further steps in this professional field. In terms of methodology, strategic product development is based on evaluating market trends, testing them in prototype products, and consistently translating them into cost-effective marketing.

Strategic energy and sustainability consulting

The development of a strategic focus on renewable energies, energy efficiency, and sustainability is becoming increasingly important in the energy sector and industry. The energy industry goals of the nation-states and the European Union with regard to energy efficiency and renewable energies make an important contribution to this. The UN Sustainable Development Goals of the United Nations contribute to this in terms of sustainability targets. In the field of strategic energy & sustainability consulting, graduates work as consultants to develop energy and sustainability strategies for regional, national, and international companies. The focus is on developing a strategy to define a company's sustainability goals and implement them in a quality-assured manner. In addition, the energy efficiency of technical systems is examined and concepts for optimal energy use are drawn up. In general, the activities of this

professional role also include areas of responsibility related to corporate social responsibility (CSR), change processes within the company, as well as communication tasks. Specifically, this involves formulating objectives and developing a mission statement as well as defining corporate values in the area of energy use and sustainability.

Corporate and municipal sustainability strategies

Due to the increasing regionalization of energy generation, the sector coupling of the secondary energy sources of electricity, heat, and hydrogen, as well as the expansion of the business areas of municipal companies beyond electricity and heat to IT services and mobility services, the strategic orientation of these companies must be continuously developed. The aim here is to coordinate new regional, national, and international concepts for smart cities, smart grids, and energy cooperatives, as well as retrofitting initiatives in the building sector. In sum, holistic concepts are developed and supported from a sustainability perspective. Energy cooperatives, often in the form of citizen participation or crowdfunding, are driving forward the large-scale and industrial-scale expansion of renewable energies, such as wind turbines or photovoltaic systems. This needs to be managed and strategies developed in order to develop a holistic energy supply for companies and municipalities.

Innovation management for energy and sustainability

In the field of innovation management for energy and sustainability, regional, national, and international companies need to constantly develop their innovative strength. The entire innovation process must be managed, from technology scouting and the technical assessment of the maturity level of products and technologies to the development of business models. Company-wide information and knowledge management enables the initiation of innovations by bundling and linking existing knowledge and information. Innovation management is responsible for the future of an energy supply company. It encompasses the necessary planning, organizational, and management tasks. In contrast to product development, innovation management does not focus on products but mostly on intangible objects such as internal processes, production processes, management processes, organizational structures, or the development of new business models. The aim of innovation management is to develop the effectiveness, efficiency, and sustainability of a company and thus create added value and market advantages.

1.2 Qualification profile

The qualification objectives and learning outcomes of the master's degree program in Energy & Sustainability Management correspond to both the academic and professional requirements of the field and meet the standard of ISCED (International Standard Classification of Education) level 0788. The content taught qualifies graduates for the professional fields of activity mentioned in the previous section.

The content of the program focuses on the fundamental technical, economic, and legal contexts of the industry, as well as the teaching of quantitative and qualitative approaches to research. The latter allows graduates to implement and apply the scientific method to research questions in both science and the business world. In particular, methods and concepts are dealt with that allow graduates to address problems and questions frequently encountered in the energy industry and the fields of energy technology and sustainability. In addition to these core competencies, complementary competencies and strategic thinking skills are covered in specialization modules.

The following matrix is a graphic representation of Table 1, indicating which occupational fields require which core competencies (black fields).

Matrix of occupational fields and core competencies:

		Core competencies							
Occupational fields		Innovative Business Models	Sustainability & Environmental Controlling	Market & Trading Strategies	Innovative Energy Concepts	Smart Cities & Municipalities	Energy Trading & Market Processes	Investment & Risk Management	Strategic Business Management & HRM
Strategic energy trading	Strategic energy trading								
	Strategic product development for energy and sustainability								
	Strategic energy and sustainability consulting								
	Corporate and municipal sustainability strategies								
	Innovation management for energy and sustainability								

Table 1 below presents the relevant occupational fields in relation to their associated tasks and the required competencies. The focus in Table 1 is on the core competencies listed in the matrix above. The competencies listed are assigned to the corresponding modules.

Table 1: Competency descriptions in relation to occupational fields

Occupational field	Task	Competency description	Type of Competency	Curriculum/ Module
Strategic energy trading	Risk management	Can manage market risk correlations	Professional and scientific competencies/ Business and management	Investment & Risk Management
	Procurement and trading strategy	Can describe factors influencing pricing in the electricity market based on the order merit	Professional and scientific competencies/ Business and management	Energy Trading & Market Processes
		Can take account of volatilities and optionalities in the energy market	Professional and scientific competencies/ Business and management	Energy Trading & Market Processes
	Market reports and market forecasts	Can take account of electricity and gas fundamental factors influencing wholesale prices	Professional and scientific competencies/ Business and management	Energy Trading & Market Processes
	Marketing of power plant capacities	Can develop and implement corporate strategies for energy trading	Professional and scientific competencies/ Business and management	Market & Trading Strategies
Strategic product development	Developing business models and products	Can develop business models for innovative applications in the energy sector	Professional and scientific competencies/ Technology	Innovative Business Models

energy and sustainability		Can analyze innovative energy concepts and develop products	Professional and scientific competencies/ Technology	Innovative Concepts	Energy
	Develop financing models	Are familiar with financing methods and can apply them	Professional and scientific competencies/ Business and management	Investment & Risk Management	
	Marketing sector coupling	Can discuss the supply of electricity, heating, and cooling as well as the logistics of energy sources and classify them in terms of their impact	Professional and scientific competencies/ Technology	Innovative Concepts	Energy
		Are familiar with the effects and interactions between the relevant sectors and can evaluate them.	Professional and scientific competencies/ Technology	Smart Cities & Municipalities	
Corporate and municipal sustainability strategies	The concept of smart cities	Are familiar with key players and relevant sectors of smart cities	Professional and scientific competencies/ Technology	Smart Cities & Municipalities	
		Can assess impacts and interactions between the relevant sectors	Professional and scientific competencies/ Technology	Smart Cities & Municipalities	
		Can assess the advantages and disadvantages of centralized and decentralized supply systems	Professional and scientific competencies/ Technology	Innovative Concepts	Energy
	Strategies for energy cooperatives	Can develop recommendations for action from smart city projects that have been implemented	Professional and scientific competencies/ Technology	Smart Cities & Municipalities	
Strategic energy and sustainability consulting	Energy and sustainability strategy for companies	Can prepare and evaluate an energy and sustainability report	Professional and scientific competencies/ Business and management	Sustainability & Environmental Controlling	
	Conceptualization of optimal energy utilization	Are familiar with the advantages and disadvantages of centralized and decentralized supply structures	Professional and scientific competencies/ Technology	Innovative Concepts	Energy
	Developing a mission statement and change process	Can develop a corporate strategy and design the corresponding implementation process	Professional and scientific competencies/ Business and management	Strategic Management	Business & HRM
	CSR strategy	Can carry out and communicate strategic analyses and plans with appropriate management tools	Professional and scientific competencies/ Business and management	Strategic Management	Business & HRM
Innovation management for energy and sustainability	Technology scouting	Can discuss current trends in the supply of electricity, heating, and cooling, as well as the logistics of energy sources, and can assess their potential at an early stage.	Professional and scientific competencies/ Technology	Innovative Concepts	Energy
	Controlling the innovation process	Are familiar with innovation processes and technology trends in the energy industry and the sustainability sector and can evaluate them	Professional and scientific competencies/ Technology	Innovative Models	Business

Table 2 below presents the complementary competencies and their assigned modules. These specializations and their associated competencies are dependent on the selected compulsory elective modules from the 2nd and 3rd semesters and are relevant for a range of occupational fields. A total of six compulsory elective modules are offered, of which a total of three modules must be selected and successfully completed.

The following compulsory elective modules are offered in the 2nd semester:

- Compulsory Elective Module 1: Mobility Management or Safety Management
- Compulsory Elective Module 2: Circular Economy & Bioeconomy or Asset & Portfolio Management

The following compulsory elective modules are offered in the 3rd semester:

- Compulsory Elective Module 3: Energy & Building Simulation or Sustainable Building Certification

Table 2: Competency descriptions of the compulsory elective modules

Occupational field	Task	Competency description	Type of Competency	Curriculum/ Module
Occupational fields (depending on compulsory elective module 1)	Mobility services	Can discuss both the potential of and the requirements for infrastructure for sustainable mobility (incl. energy supply infrastructure) and underline arguments with key figures	Professional and scientific competencies/ Technology	Mobility Management
	Innovative mobility strategies	Can both analyze and independently draft solutions for economic and strategic implementation.	Professional and scientific competencies/ Technology	Mobility Management
	Mobility concepts	Can analyze and draft mobility concepts and are familiar with strategies for minimizing mobility	Professional and scientific competencies/ Technology	Mobility Management
	Optimization of the building stock	Are familiar with the measures required for preventative building safety	Professional and scientific competencies/ Business and management	Safety Management
	Building safety	Can evaluate hazards and derive safety measures	Professional and scientific competencies/ Business and management	Safety Management
Occupational fields (depending on compulsory elective module 2)	Developing the efficiency and sustainability of a company	Are familiar with the connection between sustainability goals and the circular economy and bioeconomy	Professional and scientific competencies/ Business and management	Circular Economy & Bioeconomy
		Are familiar with the technical and biological cycle for consumer products	Professional and scientific competencies/ Business and management	Circular Economy & Bioeconomy
		Can evaluate the life cycle of a company's products	Professional and scientific competencies/ Business and management	Circular Economy & Bioeconomy
	Analysis of potentials	Can identify the potential for an increase in the value of real estate portfolios and identify associated measures	Professional and scientific competencies/ Business and management	Asset & Portfolio Management
	Analysis of optimization potential	Can prepare investment analyses and potential analyses	Professional and scientific competencies/ Business and management	Asset & Portfolio Management
		Can collect and assess key performance indicators	Professional and scientific competencies/ Business and management	Asset & Portfolio Management

Occupational fields (depending on compulsory module 3)	Real estate utilization	Can assess properties as part of a due diligence process	Professional and scientific competencies/ Business and management	Asset & Portfolio Management
	Occupancy planning and letting of properties	Can carry out vacancy analyses and are familiar with measures to reduce vacancies	Professional and scientific competencies/ Business and management	Asset & Portfolio Management
	Energy concepts in the building sector	Can understand, analyze, compare, and critically question complex energy and building technology systems under dynamic framework conditions	Professional and scientific competencies/ Technology	Energy & Building Simulation
	Building simulation	Can understand and apply the methods of building simulation	Professional and scientific competencies/ Technology	Energy & Building Simulation
		Are familiar with national and international certification systems	Professional and scientific competencies/ Technology	Sustainable Building Certification
	Life cycle assessment			
		Can present life cycle analyses (costs and ecology)	Professional and scientific competencies/ Technology	Sustainable Building Certification

Table 3 presents the remaining competencies covered in the curriculum and their assigned modules. Unlike the competencies listed in the previous tables, these tasks and their associated competencies are relevant across the different occupational fields. In combination with Tables 1 and 2, Table 3 enables a holistic and complete perspective of the curriculum in relation not the relevant occupational fields.

Table 3: Competency descriptions for all occupational fields

Occupational field	Task	Competency description	Type of Competency	Curriculum/ Module
Concerns all occupational fields	Energy and environmental policy	Can derive basic principles of national and European energy and environmental policy from sustainability goals	Professional and scientific competencies/ Business and management	Compendium of Energy Economy & Sustainability
		Can assess subsidies and marketing strategies related to renewable energies and efficiency measures from a company perspective	Professional and scientific competencies/ Business and management	Compendium of Energy Economy & Sustainability
	Renewable power and heat generation	Can describe technologies and processes for the use of renewable heat and electricity and name individual processes and quote relevant figures	Professional and scientific competencies/ Technology	Compendium of Energy Technologies
		Can discuss and evaluate requirements for the system integration of renewable energies into the general energy supply	Professional and scientific competencies/ Technology	Compendium of Energy Technologies
	Communication with experts in the field	Can name and apply marketing instruments and communication frameworks	Professional and scientific competencies/ Business and management & Personal and social competencies/ Social competencies	Marketing & Communication
	Developing solutions	Can develop specialist knowledge to solve specific problems and apply	Professional and scientific competencies/	Practical Project

Concerns all occupational fields		specialist knowledge to a given context	Business and management & Personal and social competencies/ Social competencies	
	Participation in internal processes	Are familiar with methods and solution strategies in human resources management and can apply and implement these in organizational and human resources development	Professional and scientific competencies/ Business and management	Strategic Business Management & HRM
		Can develop corporate strategy and design the corresponding implementation process	Professional and scientific competencies/ Business and management	Strategic Business Management & HRM
	Project management	Can independently develop problems and solutions in a practical environment and apply specialist knowledge in a situation-specific manner	Professional and scientific competencies/ Transfer into practice & Personal and social competencies/ Social competencies	Practical Project
		Can independently create project plans and define and structure organizational projects	Professional and scientific competencies/ Business and management & Personal and social competencies/ Transfer into practice	Project Management
		Are familiar with problems and can independently develop solutions in both a practical environment as well as in research and development	Professional and scientific competencies/ Transfer into practice	Practice & Research Transfer
		Can work on projects across fields in an interdisciplinary manner	Professional and scientific competencies/ Technology & Personal and social competencies/ Transfer into practice and Social & international competencies	International Energy & Sustainability Management - Project
	Research activities	Can assess the strengths and appropriate areas of application of qualitative and quantitative methods of empirical research and apply them in a practical manner	Professional and scientific competencies/ Transfer into practice	Data Analysis & Empirical Methods
	Methods of data analysis	Can select and implement approaches to data analysis within the context of a specific problem	Professional and scientific competencies/ Transfer into practice	Data Analysis & Empirical Methods
		Are familiar with scientific methods and can describe and apply them	Professional and scientific competencies/ Transfer into practice	Data Analysis & Empirical Methods
		Can apply scientific and research methods	Professional and scientific competencies/ Transfer into practice	Master's Thesis & Colloquium
	Internal corporate communication	Can apply different forms and conceptualizations of communication	Professional and scientific competencies/ Business and management & Personal and social competencies/ Social competencies	Marketing & Communication

Concerns all occupational fields	Marketing strategies	Are familiar with phases and approaches to implementing marketing strategies	Professional and scientific competencies/ Business and management & Personal and social competencies/ Social competencies	Marketing & Communication
		Can explain the conceptual foundations and theoretical approaches of strategic marketing	Professional and scientific competencies/ Business and management & Personal and social competencies/ Social competencies	Marketing & Communication
	Intercultural work	Can combine acquired factual knowledge to construct potential solutions to problems	Professional and scientific competencies/ Transfer into practice & Personal and social competencies/ Social & international competencies	International Energy & Sustainability Management - Practice, Research & Study Trip
		Can discuss acquired factual knowledge in an international context	Professional and scientific competencies/ Transfer into practice & Personal and social competencies/ Social & international competencies	International Energy & Sustainability Management - Practice, Research & Study Trip
	Scientific development of a topic	Can independently develop and elaborate on a professional/scientific issue and review and apply scientific methods	Professional and scientific competencies/ Transfer into practice	Master's Thesis & Colloquium
		Can apply scientific methods in empirical investigations	Professional and scientific competencies/ Transfer into practice	Data Analysis & Empirical Methods
		Can conduct literature research on scientific problems and insights, and can elaborate on this research.	Professional and scientific competencies/ Transfer into practice	Data Analysis & Empirical Methods

2 CURRICULUM

2.1 Curriculum Data

	Full-time	Program for working professionals, a.k.a. part-time program	Any comments
Year of first implementation (YYYY/YYYY ₊₁)	2025/2026	2021/2022	
Standard duration of program (Number of semesters)	4	4	
SWS (Semester Hours) (Total of all semesters)	49.5	49.5	
ECTS Points (Total of all semesters)	120	120	
Start of Winter Term (CW = Calendar Week)	CW 40	CW 40	
End of Winter Term (CW = Calendar Week)	CW 5	CW 5	
Start of Summer Term (CW = Calendar Week)	CW 11	CW 11	
End of Summer Term (CW = Calendar Week)	CW 28	CW 28	
Number of weeks in Winter Term	15	15	
Number of weeks in Summer Term	15	15	
Compulsory semester abroad	No	No	
Language of instruction	English	German	The proportion of courses taught in English in the part-time program for working professionals is 24% (measured in relation to the total number of SWS).
Internship	No	No	
If the curriculum is the result of a merger of programs or separation from another program: Degree program codes [StgKz] of relevant programs			

2.2 Curriculum matrix

This overview does not include the workload for the supervision of master's theses. An effort of 0.6 SWS is planned per supervised thesis, i.e., an additional ASWS effort of 12.6 ASWS for 21 accredited full-time study places and an additional effort of 12 ASWS for 20 accredited study places in the part-time form for working professionals. Over all 4 semesters and including the master's thesis supervision, the total is 67.1 ASWS for the full-time organizational form and 66.5 ASWS for the part-time organizational form for working professionals.

1. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
EM	Energy Market & Trading I	ILV		X	2.5	1	2.5	37.5	EM	5
ENMK	Compendium Energy Economics & Sustainability	ILV		X	2.5	1	2.5	37.5	ENMK	5
ETEK	Compendium Energy Technologies	ILV	X	X	2.5	1	2.5	37.5	ETK	5
IEK	Innovative Energy Concepts	ILV	X	X	2.5	1	2.5	37.5	IEK	5
PM	Strategic Project Management	ILV		X	2.5	1	2.5	37.5	PM	5
SM	Strategic Business Management & HRM	ILV		X	2.5	1	2.5	37.5	SBM	5
Total line:					15.0		15.0	225.0		30
Course hours = Total WSH x course weeks					225.0					

2. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
CEBE	Circular & Bioeconomy	ILV		X	2.5	1	2.5	37.5	CEBE	5
DEM	Data Analytics & Empirical Methods	ILV	X	X	2.5	1	2.5	37.5	DEM	5
IGM	Innovative Business Concepts	ILV		X	2.5	1	2.5	37.5	IGM	5
IRM	Investment & Risk Management	ILV		X	2.5	1	2.5	37.5	IRM	5
MHS	Energy Market & Trading II	ILV		X	2.5	1	2.5	37.5	EM	5
MOB	Mobility Management	ILV	X	X	2.5	1	2.5	37.5	MOB	5
Total line:					15.0		15.0	225.0		30
Course hours = Total WSH x course weeks					225.0					

3. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
MCO	Marketing & Communications	ILV		X	2.5	1	2.5	37.5	MCO	5
NUC	Sustainability & Environmental Controlling	ILV		X	2.5	1	2.5	37.5	NUC	5
PJ	Business Project	PT		X	2.5	2	5.0	75.0	PJ	5
SMC	Smart Cities & Communities	ILV	X	X	2.5	1	2.5	37.5	SMC	5
WS	International Energy & Sustainability Management - Project	ILV	X	X	2.5	2	5.0	75.0	WS	5
ZERT	Sustainable Building Certification	ILV	X	X	2.5	1	2.5	37.5	ZERT	5
Total line:					15.0		20.0	300.0		30
Course hours = Total WSH x course weeks					225.0					

4. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
MA	Master Thesis & Colloquium	ILV		X	1	1	1	15	MA	24
PFE	Business & Research Transfer	ILV		X	1.5	1	1.5	22.5	PFE	3
ST	International Energy & Sustainability Management - Practice, Research & Study Trip	ILV		X	2	1	2	30	ST	3
Total line:					4.5		4.5	67.5		30
Course hours = Total WSH x course weeks					67.5					

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	49.5	54.5	817.5	120
Total number of courses in 1st year of study	30	30	450	60
Total number of courses in 2nd year of study	19.5	24.5	367.5	60
Total number of courses in 3rd year of study				
Total number of technical events over all semesters	17.5			35
Percentage of technical courses over all semesters based on WSH / ECTS	35.35 %			29.17 %
Total number of courses in English over all semesters	49.5			120
Proportion of courses in English over all semesters based on WSH / ECTS	100 %			100 %

2.3 Module descriptions

Module number:	Compendium Energy Economics & Sustainability	Scope:	
ENMK		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: Introduction and consolidation		
Previous knowledge	1. Semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Compendium Energy Economics & Sustainability /ILV / LV-Nr: ENMK / 1.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Caro-Gonzalez, A. (2024). Transformative Governance for the Future: Navigating Profound Transitions. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-43132-6 • Heffron, R. J., & De Fontenelle, L. (Eds.). (2024). The Power of Energy Justice & the Social Contract. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-46282-5 • 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 Modelling (Vol. 101). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-58897-6 • Letmathe, P., Roll, C., Balleer, A., Bösch, S., Breuer, W., Förster, A., Gramelsberger, G., Greiff, K., Häußling, R., Lemme, M., Leuchner, M., Paegert, M., Piller, F. T., Seefried, E., & Wahlbrink, T. (Eds.). (2024). Transformation Towards Sustainability: A Novel Interdisciplinary Framework from RWTH Aachen University. Springer International Publishing. https://doi.org/10.1007/978-3-031-54700-3 • Samans, R. (2024). Human-Centred Economics: The Living Standards of Nations. Springer International Publishing. https://doi.org/10.1007/978-3-031-37435-7 • Wu, H.-H., Liu, W.-Y., & Huang, M. C. (Eds.). (2023). Moving Toward Net-Zero Carbon Society: Challenges and Opportunities. Springer International Publishing. https://doi.org/10.1007/978-3-031-24545-9 		
Acquisition of skills	<u>Compendium Energy Economics & Sustainability /ILV / LV-Nr: ENMK / 1.Semester / ECTS: 5</u> <p>The students are able to:</p> <ul style="list-style-type: none"> • explain technical terms and models of sustainability and energy management • derive basic features of national and European energy, climate protection and environmental policy from sustainability goals • demonstrate the principle of subsidiarity on the basis of global, national, regional and corporate sustainability goals • assign energy, climate protection and environmental legislation and regulations at national and European level to the corresponding bodies • explain promotion mechanisms and marketing concepts for renewable energies and energy management, to assign energy, climate protection and environmental legislation as well as regulations on national and European level to the corresponding organs • evaluate promotion mechanisms and marketing concepts for renewable energies and efficiency measures from the company's point of view • explain definitions of quality in relation to energy and sustainability management as well as to present requirements and tasks of quality management systems 		
Course contents	<u>Compendium Energy Economics & Sustainability /ILV / LV-Nr: ENMK / 1.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Methods of Sustainability Assessment • History & Stakeholders of the Energy Industry • Quality Management • Sustainability Management • Energy, Climate Protection and Environmental Policy • Energy, Climate Protection and Environmental Law • Promotion Instruments and Marketing Concepts of Energy 		
Teaching and learning methods	<u>Compendium Energy Economics & Sustainability /ILV / LV-Nr: ENMK / 1.Semester / ECTS: 5</u> <p>Blended Learning</p>		
Evaluation Methods Criteria	<u>Compendium Energy Economics & Sustainability /ILV / LV-Nr: ENMK / 1.Semester / ECTS: 5</u> <p>Written exam</p>		

Module number:	Compendium Energy Technologies	Scope:	
ETK		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: Introduction and consolidation		
Previous knowledge	1. Semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Compendium Energy Technologies /ILV / LV-Nr: ETEK / 1.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Blume, S. W. (2017). Electric power system basics for the nonelectrical professional (Second edition). IEEE Press, Wiley. • Hossain, E., & Petrovic, S. (2021). Renewable energy crash course: A concise introduction. Springer. • Jenkins, N., & Ekanayake, J. (2024). Renewable energy engineering (Second edition). Cambridge University Press. • Nelson, V., & Starcher, K. (2016). Introduction to renewable energy (Second edition). CRC Press, Taylor & Francis Group. • Zhao, X., & Ma, X. (Eds.). (2019). Advanced energy efficiency technologies for solar heating, cooling and power generation. Springer. 		
Acquisition of skills	<u>Compendium Energy Technologies /ILV / LV-Nr: ETEK / 1.Semester / ECTS: 5</u> The students are able to: <ul style="list-style-type: none"> • apply basic laws of thermodynamics and fluid mechanics to questions of energy technology • comprehend processes of energy conversion and calculate technical key figures • reproduce and explain definitions of current and voltage, electric and magnetic field as well as Ohm's law and electromagnetic induction • question technical correlations of a task described in detail and delimited from the field of electrical engineering • describe technologies and procedures for the use of regenerative heat and electricity and name individual processes and present characteristic values • discuss requirements for the system integration of renewable energies into the general energy supply and evaluate the potential of sector coupling in this context 		
Course contents	<u>Compendium Energy Technologies /ILV / LV-Nr: ETEK / 1.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Electrochemistry • Mechanics • Thermodynamics • Electrical engineering • Design, operation and characteristics of power generation plants 		
Teaching and learning methods	<u>Compendium Energy Technologies /ILV / LV-Nr: ETEK / 1.Semester / ECTS: 5</u> Blended Learning		
Evaluation Methods Criteria	<u>Compendium Energy Technologies /ILV / LV-Nr: ETEK / 1.Semester / ECTS: 5</u> Written exam		

Module number:	Innovative Energy Concepts	Scope:	
IEK		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: Introduction and consolidation		
Previous knowledge	1. Semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Innovative Energy Concepts /ILV / LV-Nr: IEK / 1.Semester / ECTS: 5</u>		

	<ul style="list-style-type: none"> • 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 Modelling (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 / 1.Semester / ECTS: 5</u> The students are able to: <ul style="list-style-type: none"> • independently analyze innovative energy concepts and distinguish them from conventional ones • discuss current development trends in the supply of electricity, heating and cooling as well as the logistics of energy sources and classify them with regard to their effects • evaluate and classify the advantages and disadvantages of centralized and decentralized supply structures
Course contents	<u>Innovative Energy Concepts /ILV / LV-Nr: IEK / 1.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Sector coupling • Demonstration projects such as Smart City Lab • Electricity grids • Heat grids • Power2X
Teaching and learning methods	<u>Innovative Energy Concepts /ILV / LV-Nr: IEK / 1.Semester / ECTS: 5</u> Blended Learning
Evaluation Methods Criteria	<u>Innovative Energy Concepts /ILV / LV-Nr: IEK / 1.Semester / ECTS: 5</u> Seminar thesis

Module number:	Project Management	Scope:	
PM		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: Introduction and consolidation		
Previous knowledge	1. Semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Strategic Project Management /ILV / LV-Nr: PM / 1.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Angliss, K., & Harpum, P. (Eds.). (2023). Strategic portfolio management: In the multi-project and program organisation (1 Edition). Routledge. • Ding, R., Wagner, R., & Bodea, C.-N. (Eds.). (2022). Research on Project, Programme and Portfolio Management: Projects as an Arena for Self-Organizing. Springer International Publishing. https://doi.org/10.1007/978-3-030-86248-0 • Erne, R. (2022). Lean Project Management—How to Apply Lean Thinking to Project Management. Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-35572-2 • Isichenko, M. (2021). Quantitative portfolio management: The art and science of statistical arbitrage. Wiley. • Project Management Institute (Ed.). (2017). The standard for portfolio management (Fourth edition). Project Management Institute, Inc.]. 		
Acquisition of skills	<u>Strategic Project Management /ILV / LV-Nr: PM / 1.Semester / ECTS: 5</u> The students are able to: <ul style="list-style-type: none"> • explain the role of project management in corporate strategy. • develop long-term project strategies that coincide with the company's overall objectives. • create project portfolios that support the company's strategic objectives. • identify and assess project risks at a strategic level. • apply methods for prioritizing, evaluating and improving projects in the portfolio from a strategic perspective. • explain the importance of stakeholder management for project success and carry out strategic stakeholder analysis • implement decision-making processes and escalation mechanisms in complex project scenarios and project portfolios. 		
Course contents	<u>Strategic Project Management /ILV / LV-Nr: PM / 1.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Tasks, tools and methods of project management • Organization: Structural, process and project organization • Schedule, cost and quality management • Resource management • Communication and integration • Risk management 		
Teaching and learning methods	<u>Strategic Project Management /ILV / LV-Nr: PM / 1.Semester / ECTS: 5</u> Blended Learning		
Evaluation Methods Criteria	<u>Strategic Project Management /ILV / LV-Nr: PM / 1.Semester / ECTS: 5</u> Project and examination		

Module number:	Strategic Business Management & HRM	Scope:	
SBM		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: Introduction and consolidation		
Previous knowledge	1. Semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Strategic Business Management & HRM /ILV / LV-Nr: SM / 1.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Anbanandam, R., & Rangnekar, S. (Eds.). (2022). Flexibility, Innovation, and Sustainable Business. Springer Nature Singapore. https://doi.org/10.1007/978-981-19-1697-7 • 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., Freccè, 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 • Jonker, J., & Faber, N. (2021). Organizing for Sustainability: A Guide to Developing New Business Models. Springer International Publishing. https://doi.org/10.1007/978-3-030-78157-6 • Kaehler, B. (2022). Complementary Management: A Practice-driven Model of People Management and Leadership in Organizations. Springer International Publishing. https://doi.org/10.1007/978-3-030-98163-1 • Malik, A. (Ed.). (2022). Strategic Human Resource Management and Employment Relations: An International Perspective. Springer International Publishing. https://doi.org/10.1007/978-3-030-90955-0 • Markides, C. (2023). Business model innovation: Strategic and organizational issues for established firms. Cambridge University Press. • Osterwalder, A., & Pigneur, Y. (2013). Business model generation: A handbook for visionaries, game changers, and challengers. Wiley&Sons. • Talapatra, J., Mitra, N., & Schmidpeter, R. (Eds.). (2022). Emerging Economic Models for Sustainable Businesses: A Practical Approach. Springer Nature Singapore. https://doi.org/10.1007/978-981-16-7614-7 • Troger, H. (2022). Resetting Human Resource Management: Seven Essential Steps to Evolve from Crises. Springer International Publishing. https://doi.org/10.1007/978-3-031-06166-0 • Zubac, A., Tucker, D., Zwikael, O., Hughes, K., & Kirkpatrick, S. (Eds.). (2022). Effective Implementation of Transformation Strategies: How to Navigate the Strategy and Change Interface Successfully. Springer Nature Singapore. https://doi.org/10.1007/978-981-19-2336-4 		
Acquisition of skills	<u>Strategic Business Management & HRM /ILV / LV-Nr: SM / 1.Semester / ECTS: 5</u> <p>The students are able to:</p> <ul style="list-style-type: none"> • carry out and communicate strategic analyses and planning with appropriate management tools • develop a corporate strategy and design the corresponding implementation process • explain technical terms and areas of responsibility of personnel management • describe and compare different management styles • apply and implement methods and solution strategies in personnel management and in organizational and personnel development • discuss options of Corporate Social Responsibility (CSR) at the workplace 		
Course contents	<u>Strategic Business Management & HRM /ILV / LV-Nr: SM / 1.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Strategic Business Management <ul style="list-style-type: none"> o strategic pyramid (mission, vision and mission statement, goals, strategies) o strategic models, decision theories and competitive strategies o tools of strategic analysis and planning (e.g. SWOT, portfolio analysis) • Human Resource Management <ul style="list-style-type: none"> o tasks of human resources work and personnel planning o personnel costs including key figures, salary increase, participation models, forms of remuneration o personnel assessment, motivation theories and personnel development o leadership theories o Corporate Social Responsibility (CSR) at the workplace 		
Teaching and learning methods	<u>Strategic Business Management & HRM /ILV / LV-Nr: SM / 1.Semester / ECTS: 5</u> <p>Blended Learning</p>		
Evaluation Methods Criteria	<u>Strategic Business Management & HRM /ILV / LV-Nr: SM / 1.Semester / ECTS: 5</u> <p>Seminar thesis</p>		

Module number:	Energy Market & Trading	Scope:	
EM		10	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: Introduction and consolidation / 2. Semester: Consolidation		
Previous knowledge	1. Semester: none / 2. Semester: Module Energy Trading & Market Processes		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Energy Market & Trading I /ILV / LV-Nr: EM / 1.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • 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 		
	<u>Energy Market & Trading II /ILV / LV-Nr: MHS / 2.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • 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 I /ILV / LV-Nr: EM / 1.Semester / ECTS: 5</u> The students are able to: <ul style="list-style-type: none"> • recognize the interrelationships of factors influencing energy markets • consider factors influencing the wholesale prices of electricity and gas • transfer market processes for the provision of system services to energy portfolios • use trading cascades in energy trading • consider volatilities and optionalities in the energy market • illustrate factors influencing price formation in the electricity market using the merit order • consider the influence of CO2 on trading markets 		
	<u>Energy Market & Trading II /ILV / LV-Nr: MHS / 2.Semester / ECTS: 5</u> The students are able to: <ul style="list-style-type: none"> • plan procurement of electricity and gas on markets • develop and implement corporate strategies for energy trading • consider legal framework conditions on the energy market 		
Course contents	<u>Energy Market & Trading I /ILV / LV-Nr: EM / 1.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Trading cascade in the electricity and gas market • Different markets for system services • Fundamental factors influencing energy markets • Markets for renewable energy sources • Commodity futures trading • Exchange vs. OTC • OTC contracts • CO2 trading markets • Factors influencing the electricity price • Merit order principle 		
	<u>Energy Market & Trading II /ILV / LV-Nr: MHS / 2.Semester / ECTS: 5</u>		

	<ul style="list-style-type: none"> • Corporate Strategies • Trading and Procurement Strategies • Standardized Exchange Products & Trading Markets • Procurement in Electricity and Gas Markets • Interaction of Generation, Transmission and Distribution of Electricity
Teaching and learning methods	<u>Energy Market & Trading I /ILV / LV-Nr: EM / 1.Semester / ECTS: 5</u> Blended Learning

Teaching and learning methods	<u>Energy Market & Trading II /ILV / LV-Nr: MHS / 2.Semester / ECTS: 5</u> Blended Learning
Evaluation Methods Criteria	<u>Energy Market & Trading I /ILV / LV-Nr: EM / 1.Semester / ECTS: 5</u> Written exam
	<u>Energy Market & Trading II /ILV / LV-Nr: MHS / 2.Semester / ECTS: 5</u> Project and examination

Module number:	Circular & Bioeconomy	Scope:	
CEBE		5	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	2. Semester		
Level	2. Semester: Introduction and consolidation		
Previous knowledge	2. Semester: basic business administration knowledge at Bachelor level		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Circular & Bioeconomy /ILV / LV-Nr: CEBE / 2.Semester / ECTS: 5</u> <ul style="list-style-type: none"> 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., Frecè, 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 & Bioeconomy /ILV / LV-Nr: CEBE / 2.Semester / ECTS: 5</u> The students are able to: <ul style="list-style-type: none"> explain and delimit models and technical terms in the circular economy and bio-economy demonstrate the connection between sustainability goals as well as the circular economy and bio-economy describe the central topics of waste management evaluate the life cycle of products classify the use of renewable raw materials and carbon cycles describe and evaluate the differences between a linear economic model and the circular economy show the connection between energy policy decisions and the circular economy and bio-economy 		
Course contents	<u>Circular & Bioeconomy /ILV / LV-Nr: CEBE / 2.Semester / ECTS: 5</u> <ul style="list-style-type: none"> Technical and biological cycle for products Life cycle analysis (costs, energy, CO₂) Economic models Political measures in connection with the circular economy and bioeconomy Waste management 		
Teaching and learning methods	<u>Circular & Bioeconomy /ILV / LV-Nr: CEBE / 2.Semester / ECTS: 5</u> Blended Learning		
Evaluation Methods Criteria	<u>Circular & Bioeconomy /ILV / LV-Nr: CEBE / 2.Semester / ECTS: 5</u> Seminar thesis and examination		

Module number:	Data Analytics & Empirical Methods	Scope:	
DEM		5	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	2. Semester		
Level	2. Semester: Introduction and consolidation		
Previous knowledge	2. Semester: academic work and empirical methods at Bachelor level		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Data Analytics & Empirical Methods /ILV / LV-Nr: DEM / 2.Semester / ECTS: 5</u> <ul style="list-style-type: none"> American Psychological Association (Washington, District of Columbia) (Ed.). (2020). Publication manual of the American psychological association (Seventh edition). American Psychological Association. Coren, E., & Wang, H. (Eds.). (2024). Storytelling to Accelerate Climate Solutions. Springer International Publishing. https://doi.org/10.1007/978-3-031-54790-4 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 ed.). 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. Jamieson, K. H., Kahan, D., & Scheufele, D. A. (2017). The Oxford handbook of the science of science communication. Oxford university press. Montgomery, S. L. (2017). The Chicago guide to communicating science (2nd ed). University of Chicago press. Viceconti, M., & Emili, L. (Eds.). (2024). Toward Good Simulation Practice: Best Practices for the Use of Computational Modelling 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 & Empirical Methods /ILV / LV-Nr: DEM / 2.Semester / ECTS: 5</u> <p>The students are able to:</p> <ul style="list-style-type: none"> understand connections between research practice and fact-based decision-making processes in professional practice understand the role of basic theoretical assumptions and concepts in the research process and research design assess the strengths and applications of qualitative and quantitative methods for empirical research and to apply them in an exemplary manner independently collect data sets with empirical methods independently structure data sets, to analyze, present and critically evaluate information select and implement methods of data analysis in the context of a specific problem understand and apply concepts and methods of descriptive and explorative statistics as well as predictive data analysis understand special requirements for data preparation and data storage present and critically evaluate information 		
Course contents	<u>Data Analytics & Empirical Methods /ILV / LV-Nr: DEM / 2.Semester / ECTS: 5</u> <p>Empirical methods and academic methods</p> <ul style="list-style-type: none"> research practice and fact-based decisions qualitative and quantitative methods, research design and forms of data collection (e.g. interview, questionnaire, observation, field and laboratory study, experiment, simulation) basics Exposé for the Master thesis <p>Data Analysis</p> <ul style="list-style-type: none"> univariate and multivariate data analysis predictive statistical data analysis (Machine Learning) and methodology of inferential statistics probability theory, information theory, Bayes Theorem system dynamics and agenda-based modeling application of methods of data analysis presentation and visualization of data 		
Teaching and learning methods	<u>Data Analytics & Empirical Methods /ILV / LV-Nr: DEM / 2.Semester / ECTS: 5</u> <p>Blended Learning</p>		
Evaluation Methods Criteria	<u>Data Analytics & Empirical Methods /ILV / LV-Nr: DEM / 2.Semester / ECTS: 5</u> <p>Portfolio</p>		

Module number:	Innovative Business Concepts	Scope:	
IGM		5	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	2. Semester		
Level	2. Semester: Consolidation		
Previous knowledge	2. Semester: Module Innovative Energy Concepts		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Innovative Business Concepts /ILV / LV-Nr: IGM / 2.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • De Villiers, R. (Ed.). (2022). The Handbook of Creativity & Innovation in Business: A Comprehensive Toolkit of Theory and Practice for Developing Creative Thinking Skills. Springer Nature Singapore. https://doi.org/10.1007/978-981-19-2180-3 • Jahankhani, H., V. Kilpin, D., & Kendzierskyj, S. (Eds.). (2022). Blockchain and Other Emerging Technologies for Digital Business Strategies. Springer International Publishing. https://doi.org/10.1007/978-3-030-98225-6 • Kreutzer, R. T. (2022). Toolbox Digital Business: Leadership, Business Models, Technologies and Change. Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-37017-6 • Kujala, J., Heikkinen, A., & Blomberg, A. (Eds.). (2023). Stakeholder Engagement in a Sustainable Circular Economy: Theoretical and Practical Perspectives. Springer International Publishing. https://doi.org/10.1007/978-3-031-31937-2 • Leitão, J., & Ratten, V. (Eds.). (2022). Strategic Innovation: Research Perspectives on Entrepreneurship and Resilience. Springer International Publishing. https://doi.org/10.1007/978-3-030-87112-3 • Marzi, G. (2022). Uncertainty-driven Innovation: Managing the New Product Development Processes in an Unpredictable Environment. Springer International Publishing. https://doi.org/10.1007/978-3-030-99534-8 • Nousala, S., Metcalf, G., & Ing, D. (Eds.). (2024). Industry 4.0 to Industry 5.0: Explorations in the Transition from a Techno-economic to a Socio-technical Future (Vol. 41). Springer Nature Singapore. https://doi.org/10.1007/978-981-99-9730-5 • Rajagopal, A. (2022). Women Entrepreneurs in Emerging Markets: Managing Performance within Ecosystems. Springer International Publishing. https://doi.org/10.1007/978-3-030-89770-3 • Ratten, V. (Ed.). (2022). Entrepreneurial Innovation: Strategy and Competition Aspects. Springer Nature Singapore. https://doi.org/10.1007/978-981-16-4795-6 • Serrat, O. (2017). Knowledge Solutions. Springer Singapore. https://doi.org/10.1007/978-981-10-0983-9 • Verkuil, A. H. (Ed.). (2024). Start-up Cultures in Times of Global Crises: Sustainable and Innovative Approaches. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-53942-8 • Zanella, F., Bosoni, G., Di Stefano, E., Iannilli, G. L., Matteucci, G., Messori, R., & Trocchianesi, R. (Eds.). (2024). Multidisciplinary Aspects of Design: Objects, Processes, Experiences and Narratives (Vol. 37). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-49811-4 		
Acquisition of skills	<u>Innovative Business Concepts /ILV / LV-Nr: IGM / 2.Semester / ECTS: 5</u> The students are able to: <ul style="list-style-type: none"> • Classify and evaluate sustainable innovations, eco-design and technology trends in the energy industry and sustainability sector • Develop business models for innovative energy applications as well as sustainability services and products • Classify technology trends along the value chain • Identify potentials and challenges of technology trends • Critically evaluate new business models in the energy sector • Describe design thinking and open innovation as possibilities in the innovation process and apply them in examples 		
Course contents	<u>Innovative Business Concepts /ILV / LV-Nr: IGM / 2.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Sustainable innovations, eco-design and trends in the energy industry and energy technology as well as the sustainability industry • Development status of technological trends • Innovative business models in the energy and sustainability industry • Value chain of the energy industry and sustainability industry • Design Thinking • Open Innovation 		
Teaching and learning methods	<u>Innovative Business Concepts /ILV / LV-Nr: IGM / 2.Semester / ECTS: 5</u> Blended Learning		
Evaluation Methods Criteria	<u>Innovative Business Concepts /ILV / LV-Nr: IGM / 2.Semester / ECTS: 5</u> Portfolio		

Module number:	Investment & Risk Management	Scope:	
IRM		5	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	2. Semester		
Level	2. Semester: Introduction and consolidation		
Previous knowledge	2. Semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Investment & Risk Management /ILV / LV-Nr: IRM / 2.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Consoli, S., Reforgiato Recupero, D., & Saisana, M. (Eds.). (2021). Data Science for Economics and Finance: Methodologies and Applications. Springer International Publishing. https://doi.org/10.1007/978-3-030-66891-4 • Guerard, J. B., Saxena, A., & Gültekin, M. N. (2022). Quantitative Corporate Finance. Springer International Publishing. https://doi.org/10.1007/978-3-030-87269-4 • Has, M. (2024). Sustainable products: Life cycle assessment, risk management, supply chains, eco-design (2nd ed.). De Gruyter. • Hull, J. (2023). Risk management and financial institutions (Sixth edition). Wiley. • Saraiva, R., & Pardal, P. A. (Eds.). (2024). Sustainable Finances and the Law: Between Public and Private Solutions (Vol. 16). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-49460-4 • Schoenmaker, D., & Schramade, W. (2023). Corporate Finance for Long-Term Value. Springer International Publishing. https://doi.org/10.1007/978-3-031-35009-2 • Soldatos, J., & Kyriazis, D. (Eds.). (2022). Big Data and Artificial Intelligence in Digital Finance: Increasing Personalization and Trust in Digital Finance using Big Data and AI. Springer International Publishing. https://doi.org/10.1007/978-3-030-94590-9 • 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>Investment & Risk Management /ILV / LV-Nr: IRM / 2.Semester / ECTS: 5</u> The students are able to: <ul style="list-style-type: none"> • Understand and apply investment calculations and life cycle costing • Understand and apply credit financing • Identify financial institutions and analyze their interrelationships • Identify and critically reflect on financial assets • Identify and apply financing methods and valuations for infrastructure and real estate 		
Course contents	<u>Investment & Risk Management /ILV / LV-Nr: IRM / 2.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Investment calculation and life cycle costing (dynamic and modern approaches) • Credit financing (loans, bonds) • Equity financing (shares) • Financial institutions • Derivatives • Market risk and management • Behavioral economics • Financing and valuation of infrastructure and real estate 		
Teaching and learning methods	<u>Investment & Risk Management /ILV / LV-Nr: IRM / 2.Semester / ECTS: 5</u> Blended Learning		
Evaluation Methods Criteria	<u>Investment & Risk Management /ILV / LV-Nr: IRM / 2.Semester / ECTS: 5</u> written exam		

Module number:	Mobility Management	Scope:	
MOB		5	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	2. Semester		
Level	2. Semester: Introduction and consolidation		
Previous knowledge	2. Semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Mobility Management /ILV / LV-Nr: MOB / 2.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Fournier, G., Boos, A., Konstantas, D., & Attias, D. (Eds.). (2024). Automated Vehicles as a Game Changer for Sustainable Mobility: Learnings and Solutions. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-61681-5 • Mulley, C., Nelson, J., & Ison, S. (Eds.). (2021). The Routledge handbook of public transport. Routledge. • Passerini, S., Barelli, L., Baumann, M., Peters, J., & Weil, M. (Eds.). (2024). Emerging Battery Technologies to Boost the Clean Energy Transition: Cost, Sustainability, and Performance Analysis. Springer International Publishing. https://doi.org/10.1007/978-3-031-48359-2 • Stiller, C., Althoff, M., Burger, C., Deml, B., Eckstein, L., & Flemisch, F. (Eds.). (2024). Cooperatively Interacting Vehicles: Methods and Effects of Automated Cooperation in Traffic. Springer International Publishing. https://doi.org/10.1007/978-3-031-60494-2 • White, P. (2016). Public transport: Its planning, management and operation (Edition 6). Routledge. 		
Acquisition of skills	<u>Mobility Management /ILV / LV-Nr: MOB / 2.Semester / ECTS: 5</u> The students are able to: <ul style="list-style-type: none"> • describe social aspects of mobility • name options and requirements for infrastructure (incl. energy supply) for sustainable mobility and to argue with key figures • analyze solution approaches for economic and strategic implementation and to develop them independently 		
Course contents	<u>Mobility Management /ILV / LV-Nr: MOB / 2.Semester / ECTS: 5</u> Social aspects of mobility <ul style="list-style-type: none"> • Infrastructure for sustainable mobility • Economic and strategic implementation • Analysis of international and national mobility projects • Exemplary development of sustainable mobility concepts 		
Teaching and learning methods	<u>Mobility Management /ILV / LV-Nr: MOB / 2.Semester / ECTS: 5</u> Blended Learning		
Evaluation Methods Criteria	<u>Mobility Management /ILV / LV-Nr: MOB / 2.Semester / ECTS: 5</u> Portfolio		

Module number:	Marketing & Communication	Scope:	
MCO		5	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Introduction and consolidation		
Previous knowledge	3. Semester: english version available soon		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<p><u>Marketing & Communications /ILV / LV-Nr: MCO / 3.Semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Burmann, C., Riley, N.-M., Halaszovich, T., Schade, M., Klein, K., & Piehler, R. (2023). Identity-Based Brand Management: Fundamentals—Strategy—Implementation—Controlling. Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-40189-4 • Mogaji, E., Adeola, O., Adisa, I., Hinson, R. E., Mukonza, C., & Kirgiz, A. C. (Eds.). (2022). Green Marketing in Emerging Economies: A Communications Perspective. Springer International Publishing. https://doi.org/10.1007/978-3-030-82572-0 • Schlegelmilch, B. B. (2022). Global Marketing Strategy: An Executive Digest. Springer International Publishing. https://doi.org/10.1007/978-3-030-90665-8 • Simões, C., Stancu, A., & Grigore, G. (Eds.). (2022). Corporate Responsibility, Sustainability and Markets: How Ethical Organisations and Consumers Shape Markets. Springer International Publishing. https://doi.org/10.1007/978-3-030-79660-0 • 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	<p><u>Marketing & Communications /ILV / LV-Nr: MCO / 3.Semester / ECTS: 5</u></p> <p>The students are able to:</p> <ul style="list-style-type: none"> • explain conceptual basics and theoretical approaches of strategic marketing • analyze marketing strategies • name phases and solution approaches for the implementation of marketing strategies • name options for the implementation and monitoring of marketing strategies • define citizen participation procedures • name options for mediation and conflict management 		
Course contents	<p><u>Marketing & Communications /ILV / LV-Nr: MCO / 3.Semester / ECTS: 5</u></p> <p>Strategic marketing</p> <ul style="list-style-type: none"> • conceptual foundations and theoretical approaches • selected cases marketing strategies • implementation and monitoring of marketing strategies <p>Citizen participation procedures</p> <ul style="list-style-type: none"> • actors and legal foundations • methods for citizen participation • selected cases citizen in citizen participation procedures <p>Business mediation and conflict management</p> <ul style="list-style-type: none"> • theories and concepts • practical applications 		
Teaching and learning methods	<p><u>Marketing & Communications /ILV / LV-Nr: MCO / 3.Semester / ECTS: 5</u></p> <p>Blended Learning</p>		
Evaluation Methods Criteria	<p><u>Marketing & Communications /ILV / LV-Nr: MCO / 3.Semester / ECTS: 5</u></p> <p>Portfolio</p>		

Module number:	Sustainability & Environmental Controlling	Scope:	
NUC		5	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Consolidation		
Previous knowledge	3. Semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Sustainability & Environmental Controlling /ILV / LV-Nr: NUC / 3.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • 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., & Benkhathi, 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 & Environmental Controlling /ILV / LV-Nr: NUC / 3.Semester / ECTS: 5</u> The students are able to: <ul style="list-style-type: none"> • prepare and evaluate sustainability reports • distinguish and implement environmental management systems according to Eco-Management and Audit Scheme • describe and apply functions, tools and motives of environmental controlling • explain tasks and tools of sustainable corporate management 		
Course contents	<u>Sustainability & Environmental Controlling /ILV / LV-Nr: NUC / 3.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Business ethics • Corporate (social) responsibility and compliance • Structure of sustainability reports and reporting standards • Functions and motives of environmental controlling • Auditing of management systems (ISO 19011) • Environmental management system ISO 14001, ISO 14044ff and EMAS • Process modeling in the context of environmental and sustainability audits, environmental impact assessment, eco-labels and eco-labels 		
Teaching and learning methods	<u>Sustainability & Environmental Controlling /ILV / LV-Nr: NUC / 3.Semester / ECTS: 5</u> Blended Learning		
Evaluation Methods Criteria	<u>Sustainability & Environmental Controlling /ILV / LV-Nr: NUC / 3.Semester / ECTS: 5</u> Seminar thesis		

Module number:	Business Project	Scope:	
PJ		5	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Consolidation		
Previous knowledge	3. Semester: Module Project Management and all course contents from the 1st, 2nd and 3rd semester		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Business Project /PT / LV-Nr: PJ / 3.Semester / ECTS: 5</u> The literature is based on the project topics dealt with.		
Acquisition of skills	<u>Business Project /PT / LV-Nr: PJ / 3.Semester / ECTS: 5</u> The students are able to: <ul style="list-style-type: none"> • Independently identify problems and tasks from a given objective • Independently collect and analyze data • Independently develop solutions and present results • Independently develop specialist knowledge to solve specific problems and implement specialist knowledge in a situation-specific manner 		
Course contents	<u>Business Project /PT / LV-Nr: PJ / 3.Semester / ECTS: 5</u> Students must carry out a project of 5 ECTS = 125 h independently in small groups. The basis for this is a set objective. The students are responsible for planning, coordination, budgeting, monitoring, communication and reporting as well as finding solutions. The role of the course leader is focused on coaching the students.		
Teaching and learning methods	<u>Business Project /PT / LV-Nr: PJ / 3.Semester / ECTS: 5</u> Problem and Project Based Learning		
Evaluation Methods Criteria	<u>Business Project /PT / LV-Nr: PJ / 3.Semester / ECTS: 5</u> Project		

Module number:	Smart Cities & Communities	Scope:	
SMC		5	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Consolidation		
Previous knowledge	3. Semester: Module Innovative Energy Concepts		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Smart Cities & Communities /ILV / LV-Nr: SMC / 3.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • 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., Katuric, 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: SMC / 3.Semester / ECTS: 5</u> The students are able to: <ul style="list-style-type: none"> • identify key actors in municipalities and regions • describe relevant sectors of the Smart City • assess impacts and interactions between relevant sectors • analyze Smart City projects achieved and develop recommendations for action independently 		
Course contents	<u>Smart Cities & Communities /ILV / LV-Nr: SMC / 3.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Background of Smart Cities • Definitions of the Smart City concept • Smart Economy, Smart Mobility, Smart Environment, Smart People, Smart Living, Smart Governance • Technical, organizational, economic and socio-cultural aspects of Smart Cities 		
Teaching and learning methods	<u>Smart Cities & Communities /ILV / LV-Nr: SMC / 3.Semester / ECTS: 5</u> Blended Learning		
Evaluation Methods Criteria	<u>Smart Cities & Communities /ILV / LV-Nr: SMC / 3.Semester / ECTS: 5</u> Seminar thesis		

Module number:	International Energy & Sustainability Management - Project	Scope:	
WS		5	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Consolidation		
Previous knowledge	3. Semester: all content from modules 1., 2., and 3. Semesters		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>International Energy & Sustainability Management - Project /ILV / LV-Nr: WS / 3.Semester / ECTS: 5</u> The literature is based on the project topics dealt with.		
Acquisition of skills	<u>International Energy & Sustainability Management - Project /ILV / LV-Nr: WS / 3.Semester / ECTS: 5</u> The students are able to: <ul style="list-style-type: none"> • create and present ideas and concepts for projects in energy and sustainability management and real estate management with real or realistic tasks and problems. • work in interdisciplinary, international teams • reflect internationally on different approaches and possible solutions and derive their own knowledge and skills from them 		
Course contents	<u>International Energy & Sustainability Management - Project /ILV / LV-Nr: WS / 3.Semester / ECTS: 5</u> One blocked compact weeks in small groups with international students: <ul style="list-style-type: none"> • Introduction, consolidation, background and examples in the complex of topics of the project within the framework of a conference or introductory event. • Research and analysis of framework conditions and possibilities • Development and visualization of ideas and concepts • Presentation of the results to stakeholders and/or technical experts 		
Teaching and learning methods	<u>International Energy & Sustainability Management - Project /ILV / LV-Nr: WS / 3.Semester / ECTS: 5</u> Problem and project-based learning, excursion, conference participation		
Evaluation Methods Criteria	<u>International Energy & Sustainability Management - Project /ILV / LV-Nr: WS / 3.Semester / ECTS: 5</u> Project		

Module number:	Sustainable Building Certification	Scope:	
ZERT		5	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	3. Semester		
Level	3. Semester: Introduction and consolidation		
Previous knowledge	3. Semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Sustainable Building Certification /ILV / LV-Nr: ZERT / 3.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Bragança, L., Cvetkovska, M., Askar, R., & Ungureanu, V. (Eds.). (2024). Creating a Roadmap Towards Circularity in the Built Environment. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-45980-1 • 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 • Lynn, T., Rosati, P., Kassem, M., Krinidis, S., & Kennedy, J. (Eds.). (2023). Disrupting Buildings: Digitalisation and the Transformation of Deep Renovation. Springer International Publishing. https://doi.org/10.1007/978-3-031-32309-6 • Moore, T., & Doyon, A. (2023). A Transition to Sustainable Housing: Progress and Prospects for a Low Carbon Housing Future. Springer Nature Singapore. https://doi.org/10.1007/978-981-99-2760-9 		
Acquisition of skills	<u>Sustainable Building Certification /ILV / LV-Nr: ZERT / 3.Semester / ECTS: 5</u> The students are able to: <ul style="list-style-type: none"> • identify and analyze requirements for a sustainable building in all planning phases • compare different national and international certification systems and methods of certification • describe the process of certification systems • prepare life cycle analyses and life cycle assessments • explain ecological, economic and socio-cultural criteria of sustainability in relation to buildings 		
Course contents	<u>Sustainable Building Certification /ILV / LV-Nr: ZERT / 3.Semester / ECTS: 5</u> <ul style="list-style-type: none"> • Requirements for a sustainable building in the planning and construction process as well as in operation • Life cycle analyses • National and international certification systems • Ecological, economic and socio-cultural sustainability criteria in relation to buildings (e.g. flexibility and conversion capability) 		
Teaching and learning methods	<u>Sustainable Building Certification /ILV / LV-Nr: ZERT / 3.Semester / ECTS: 5</u> Blended Learning		
Evaluation Methods Criteria	<u>Sustainable Building Certification /ILV / LV-Nr: ZERT / 3.Semester / ECTS: 5</u> Project and seminar thesis		

Module number:	Master Thesis & Colloquium	Scope:	
MA		24	ECTS
Degree program	University of Applied Sciences Master's Program Energy & Sustainability Management full-time		
Position in the curriculum	4. Semester		
Level	4. Semester: Consolidation		
Previous knowledge	4. Semester: Module Data Analysis and Empirical Methods and contents from the modules with cross connections to the topic of the master thesis of the semesters 1 to 3		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Master Thesis & Colloquium /ILV / LV-Nr: MA / 4.Semester / ECTS: 24</u> <ul style="list-style-type: none"> American Psychological Association (Washington, District of Columbia) (Ed.). (2020). Publication manual of the American psychological association (Seventh edition). American Psychological Association. Macgilchrist, F. (2014). Academic writing. Schöningh. Wymann, C. (2020). Mind Your Writing. Verlag Barbara Budrich. https://doi.org/10.3224/84742459 Further literature depends on the individually chosen topic of the Master's thesis		
Acquisition of skills	<u>Master Thesis & Colloquium /ILV / LV-Nr: MA / 4.Semester / ECTS: 24</u> The students are able to: <ul style="list-style-type: none"> independently prepare and elaborate a subject-specific topic as well as review and apply it using scientific methods carry out complex scientific research projects apply scientific and research methods apply the basics of scientific work present scientific facts critically question scientific findings independently write a scientific paper at the level of a Master Thesis 		
Course contents	<u>Master Thesis & Colloquium /ILV / LV-Nr: MA / 4.Semester / ECTS: 24</u> Students must independently complete a Master thesis of 20 ECTS = 500 h. Regular meetings to discuss the current status and progress of the Master thesis with the accompanying academic supervision serve as support. In the context of a colloquium with the scope of 2 ECTS = 50h, the following course contents are dealt with: <ul style="list-style-type: none"> Independent preparation and elaboration of an interdisciplinary subject Finding and substantiation of the methodology Content-related and organizational support for the preparation of the Master thesis Presenting and defending academic papers Leading discussions on academic papers <ul style="list-style-type: none"> Information on the final Master's examination The preparation for the final examination is included with 2 ECTS = 50h.		
Teaching and learning methods	<u>Master Thesis & Colloquium /ILV / LV-Nr: MA / 4.Semester / ECTS: 24</u> Blended Learning		
Evaluation Methods Criteria	<u>Master Thesis & Colloquium /ILV / LV-Nr: MA / 4.Semester / ECTS: 24</u> Master thesis and presentation		

Module number:	Business & Research Transfer	Scope:	
PFE		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: Consolidation		
Previous knowledge	4. Semester: Module Data Analysis and Empirical Methods		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Business & Research Transfer /ILV / LV-Nr: PFE / 4.Semester / ECTS: 3</u> Current specialist articles, scientific journals and project reports depend on the selected subject areas.		
Acquisition of skills	<u>Business & Research Transfer /ILV / LV-Nr: PFE / 4.Semester / ECTS: 3</u> The students are able to: <ul style="list-style-type: none"> • analyze and critically discuss selected current trends in national and international energy and sustainability management • identify, reflect and transfer examples and solution approaches from research to solve specific problems in practice • discuss research options for problems from practice 		
Course contents	<u>Business & Research Transfer /ILV / LV-Nr: PFE / 4.Semester / ECTS: 3</u> Examples and solution approaches from practice and research will be presented in lectures by experts as well as excursions to companies and research institutions. The students analyze and reflect on the presented input. The students transfer research findings in an exemplary manner for specific practical applications. Methods of research are discussed for problems from practice		
Teaching and learning methods	<u>Business & Research Transfer /ILV / LV-Nr: PFE / 4.Semester / ECTS: 3</u> Blended Learning		
Evaluation Methods Criteria	<u>Business & Research Transfer /ILV / LV-Nr: PFE / 4.Semester / ECTS: 3</u> english version available soon		

Module number:	International Energy & Sustainability Management - Practice, Research & Study Trip	Scope:	
ST		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: Consolidation		
Previous knowledge	4. Semester: all contents of the modules from the 1st, 2nd and 3rd semester		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>International Energy & Sustainability Management - Practice, Research & Study Trip /ILV / LV-Nr: ST / 4.Semester /</u> <ul style="list-style-type: none"> • 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 <p>Further literature depends on the respective field trip destination.</p>		
Acquisition of skills	<u>International Energy & Sustainability Management - Practice, Research & Study Trip /ILV / LV-Nr: ST / 4.Semester /</u> <p>The students are able to:</p> <ul style="list-style-type: none"> • Understand and question international developments and their impact on Energy and Sustainability Management. • Describe and question current global trends in the industry • Understand and question different approaches to specific problems in Energy and Sustainability Management. • Understand dynamics of culture, identity and intercultural encounter • Take a position on values, stereotypes and prejudices • Describe intercultural interaction, communication and conflict skills and apply them in intercultural settings. • Understand intercultural differences and be able to react appropriately to them in the area of Energy and Sustainability Management 		
Course contents	<u>International Energy & Sustainability Management - Practice, Research & Study Trip /ILV / LV-Nr: ST / 4.Semester /</u> <p>Students must complete an accompanied study trip / trip abroad with a specialist program. Within the scope of the study trip / trip abroad, the following contents are taught:</p> <ul style="list-style-type: none"> • Introduction and consolidation of international Best - and Real Case projects from the Energy and Sustainability Management practice as well as studies from research • Current topics of research and development by participation in international conferences • Research and analysis of international Best Case projects for Energy and Sustainability Management • Visit of international Best Case projects for Energy and Sustainability Management • Application of intercultural skills and highlighting of particularities and challenges of intercultural projects for Energy and Sustainability Management 		
Teaching and learning methods	<u>International Energy & Sustainability Management - Practice, Research & Study Trip /ILV / LV-Nr: ST / 4.Semester /</u> <p>Lecture, discussion and excursion</p>		
Evaluation Methods Criteria	<u>International Energy & Sustainability Management - Practice, Research & Study Trip /ILV / LV-Nr: ST / 4.Semester /</u> <p>Portfolio</p>		

2.4 Internship

Internship (semester information, duration in weeks per semester)	No	No
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2.5 Semester Abroad

Obligatory semester abroad (semester specification)	No	No
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3 ADMISSION REQUIREMENTS

The general admission requirements are regulated by Section 4 FHG (Universities of Applied Sciences Act), as amended. Accordingly, the subject-specific admission requirement for a master's degree program at a university of applied sciences is a completed subject-relevant bachelor's degree program at a university of applied sciences or the completion of an equivalent degree program at a recognized domestic or international post-secondary educational institution.

1. Bachelor's degree programs (or equivalent post-secondary educational qualifications) eligible as a basis for admission to this degree program must be from the field of the social sciences and economics (based on ISCED 2013, Fields of Education and Training 03/04) that cover the core subject areas of marketing, communication, as well as management and business administration (based on ISCED 2013, Fields of Education and Training 031/032/041) with a total of at least 30 ECTS points.

- 031 Social and behavioral sciences
- 041 Economy and 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, plastic, and wood)
- 0724 Mining and quarrying
- 073 Architecture and construction
- 078 Interdisciplinary programs and qualifications that relate to engineering, manufacturing, and construction

2. The degree programs of the University of Applied Sciences Kufstein Tirol provide for continuity between the bachelor's and master's levels in line with the Bologna Process. After successful completion of a bachelor's degree program, graduates should have varied opportunities to pursue a master's degree program both within and outside the University. In line with the above, graduates of the following degree programs at the University of Applied Sciences Kufstein Tirol (regardless of the organizational form) shall be deemed eligible for the present master's degree program:

- Energy & Sustainability Management
- Facility & Real Estate Management
- International Business & Management
- Marketing & Communication Management
- Sports, Culture & Event Management
- [Leadership &] Business Management
- Coding & Digital Design
- Industrial Engineering & Management

3. The teaching and examination languages of the part-time organizational form for working professionals of the master's degree program in Energy & Sustainability Management are German and English. This means that students from non-German-speaking countries enrolled in this organizational form must provide appropriate proof of proficiency in German.

4. In the full-time organizational form, the language of instruction and examination is exclusively English. Therefore, proof of English language proficiency at a level of at least B2 (CEFR) is required.
5. The Director of Studies of the master's degree program in Energy & Sustainability Management is responsible for assessing applicants' eligibility in line with the above admission criteria.