

General study regulations of the FH Master's degree program

Energy and Sustainability Management

To obtain the academic degree

Master of Arts in Business
abbreviated to MA

as an appendix to the statutes of the FH Kufstein Tirol

Organizational form: part-time

Duration: 4 semesters

Scope: 120 ECTS

Places for beginners per academic year: 20 part-time

Version 1

Approved by AQ Austria resolution of June 24th, 2021 (approval in accordance with § 25 Paragraph 3 of the Higher Education Quality Assurance Act (HS-QSG), BGBl. No. 74/2011 as amended, by the responsible Federal Minister for Education, Science and Research with the date of July 20th, 2021)

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1 OCCUPATIONAL PROFILES

1.1 Occupational fields

Students have access to a wide variety of professional fields of activity thanks to the wide range of subjects covered by the qualification profile. The following fields of activity describe selected areas of application and tasks for which graduates of the Energy and Sustainability Management degree program qualify.

Strategic energy trading

The increasing trading volumes and the complexity of new business models point to the relevance of strategy development in 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 form the most important areas of responsibility. Risk management deals with the diversification and monitoring of trading positions. The analytical evaluation of the different market sectors as well as an overall view of the trading markets enables the preparation of market reports and market forecasts. The graduates derive a procurement and trading strategy for the company in order to realize a risk-minimized and cost-effective energy procurement. The marketing of supra-regional power plant capacities supports the diversification of trading risk. In this context, special attention should be paid to new emerging structures for the marketing of renewable energies with regulated support tools and the marketing of business models of regional energy communities and virtual power plants.

Strategic product development for energy and sustainability

Strategic product development is a central task of an energy supply company to expand its product range and develop into an energy service provider. Increasing digitalization, the rising share of regional renewable power generation plants and competition for end customers for the supply of electricity, gas, heating, cooling and mobility are driving factors. 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. The professional field of product development in the energy industry and sustainability focuses on identifying the problems and needs of customers in addition to marketing new technical trends such as sector coupling and regional supply solutions. Often these are customer needs which are promoted with the marketing of a product. Empathy for the customer and a feel for new market developments form the starting point for all further steps in this professional field. Methodically, strategic product development is based on evaluating market trends, testing them in prototypes and consistently transferring them to commercial marketing.

Strategic Energy and Sustainability Consulting

The development of a strategic orientation with regard to renewable energies, energy efficiency and sustainability is becoming increasingly important in the energy sector and industry. The energy targets of the national 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 goals. Within the scope of the strategic energy and sustainability consulting field of activity, graduates deal as consultants with the creation of energy and sustainability strategies for companies. The focus is on the development of a strategy to define the sustainability goals of a company and to implement them in a quality-assured manner. Furthermore, the energy efficiency of technical installations is checked and concepts for the optimal use of energy are developed. In general, the activities also include areas covered by Corporate Social Responsibility (CSR), change processes in the company as well as communication tasks. In detail, this involves the formulation of goals and the development of a mission statement as well as the determination of 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 secondary energy carriers electricity, heat and hydrogen, as well as the expansion of the business areas of municipal companies beyond electricity and heat to include IT services and mobility services, the strategic orientation must be continuously developed. Here, new concepts of smart cities, smart grids and energy cooperatives as well as renovation concepts in the building sector must be coordinated. From the point of view of sustainability, holistic concepts are developed and accompanied. Energy cooperatives, often in the form of citizen participation or crowdfunding, are driving the large and industrial-scale expansion of renewable energy, such as wind turbines or photovoltaic systems. This needs to be managed and strategies developed to provide a holistic energy supply for businesses and communities.

Innovation Management Energy and Sustainability

In the field of innovation management for energy and sustainability, companies are concerned with constantly developing their innovative strength. Starting with technology scouting, through the technical assessment of the maturity of products and technologies, to the development of business models, the entire innovation process must be managed. Company-wide information and knowledge management enables the initiation of innovations by bundling and linking already existing knowledge and information. Innovation management is responsible for the future of an energy supply company. It includes the necessary tasks of planning, organization and management. In contrast to product development, innovation management does not focus on products, but mostly on intangible objects - such as internal procedures, manufacturing processes, management processes, organizational structures or even the development of new business models. The goal 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 aims and learning outcomes of the Master degree program in Energy and Sustainability Management correspond both to the academic and professional requirements and to *ISCED level 0788¹* (International Standard Classification of Education). The contents taught qualify the graduates for the specified professional fields of activity. The main focus of the degree program lies in the fundamental technical, economic and legal contexts of the industry as well as in imparting knowledge of quantitative and qualitative approaches in the field of scientific methods for the implementation and application of business and academic problems, analyses and research work. In particular, methods and concepts that are generally necessary for solving problems in the energy industry, energy technology and in the sustainability sector are dealt with. In addition, there are complementary skills in the in-depth knowledge and strategic content modules.

The following matrix is intended to serve as a graphic representation for Table 1, which lists the occupational fields of activity with the required skills (black fields).

¹ Example 4: A program consisting of 40% engineering (071), 30% business (041) and 30% languages (023) should be classified as 0788 ("Inter-disciplinary programs and qualifications involving engineering, manufacturing and construction") as no field predominates but 07 is the leading broad field. If engineering and business were equally important and greater than languages (e.g. 40%, 40% and 20%), the program would be classified as either 0788 or 0488 depending on which program, engineering (071) or business (041), is listed first in the program title (or, if not in the title, in the curriculum or syllabus).

Occupational fields	Core Skills							
	Innovative business models	Sustainability & Environmental Controlling	Market and trading strategies	Innovative energy concepts	Smart Cities & Communities	Energy Trading & Market Processes	Investment and Risk Management	Strategic Business Management and HRM
Strategic energy trading								
Strategic product development for energy and sustainability								
Strategic Energy and Sustainability Consulting								
Corporate and municipal sustainability strategies								
Innovation Management Energy and Sustainability								

The following Table 1 shows the respective occupational fields of activity and their defined tasks as well as the associated skills. The focus in Table 2 is on the core skills listed in the matrix above. The corresponding modules are assigned to the listed skills.

Table 1: Competence descriptions according to occupational fields of activity

Occupational field of activity	Task	Skills description	Skills allocation	Curriculum/ modules
Strategic energy trading	Risk management	Can manage market risk correlations	Technical-scientific skills/ economics and management	Investment and Risk Management
	Procurement and trade strategy	Can describe factors influencing price formation in the electricity market on the basis of the merit order	Technical-scientific skills/ economics and management	Energy Trading & Market Processes
		Can take into account volatilities and optionalities in the energy market	Technical-scientific skills/ economics and management	Energy Trading & Market Processes
	Market reports and market forecasts	Can take into account fundamental factors influencing wholesale electricity and gas prices	Technical-scientific skills/ economics and management	Energy Trading & Market Processes
	Marketing of power plant capacities	Can develop and implement corporate strategies for energy trading	Technical-scientific skills/ economics and management	Market and trading strategies
Strategic product development for	Develop business models and products	Can develop business models for innovative energy applications	Professional-Academic Competencies/ Technology	Innovative business models

energy and sustainability		Can analyze innovative energy concepts and develop products	Professional-Academic Competencies/ Technology	Innovative energy concepts
	Develop financing models	Know financing methods and can apply them	Technical-scientific skills/ economics and management	Investment and 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 effects	Professional-Academic Competencies/ Technology	Innovative energy concepts
		Know and can assess impacts and interactions between relevant sectors	Professional-Academic Competencies/ Technology	Smart Cities & Communities
Corporate and municipal sustainability strategies	Concept of Smart Cities	Know key players and relevant sectors of smart cities	Professional-Academic Competencies/ Technology	Smart Cities & Communities
		Can assess impacts and interactions between relevant sectors	Professional-Academic Competencies/ Technology	Smart Cities & Communities
		Can evaluate and classify the advantages and disadvantages of centralized and decentralized supply structures	Professional-Academic Competencies/ Technology	Innovative energy concepts
	Strategies for energy cooperatives	Can develop recommendations for action from smart city projects implemented to date	Professional-Academic Competencies/ Technology	Smart Cities & Communities
Strategic energy and sustainability consulting	Energy and sustainability strategy for companies	Can prepare and evaluate an energy and sustainability report	Technical-scientific skills/ economics and management	Sustainability & Environmental Controlling
	Concept for optimal energy use	Know the advantages and disadvantages of centralized and decentralized supply structures	Professional-Academic Competencies/ Technology	Innovative energy concepts
	Develop mission statement and change process	Can develop a corporate strategy and design the corresponding implementation process	Technical-scientific skills/ economics and management	Strategic Business Management and HRM
	CSR strategy	Can perform and communicate strategic analysis and planning using appropriate management tools	Technical-scientific skills/ economics and management	Strategic Business Management and HRM
Innovation Management Energy and Sustainability	Technology Scouting	Can discuss current development trends in the supply of electricity, heating and cooling as well as the logistics of energy sources and classify these with regard to their effects and potentials at an early stage	Professional-Academic Competencies/ Technology	Innovative energy concepts
	Controlling the innovation process	Know innovation processes and technology trends in the energy industry and sustainability industry and can evaluate them	Professional-Academic Competencies/ Technology	Innovative business models

The following table 6 shows the skills and their assigned modules as before, but these in-depth tasks as well as skills depend on the professional activities across the board and on the selected electives from the 2nd and 3rd semester. A total of six elective modules are offered, of which three modules must be chosen and successfully completed.

In the selection of the elective modules, 2x are available in the 2nd semester:

- Elective module 1: Mobility management or safety management
- Elective module 2: Recycling management and bioeconomy or asset and portfolio management

In the selection of elective modules, there is a choice of 2x in the 3rd semester:

- Elective module 3: Energy and building simulation or sustainable building certification

Table 2: Competence descriptions depending on the elective modules selected

Occupational field of activity	Task	Skills description	Skills allocation	Curriculum/ modules
Professional fields of activity (depending on elective module 1)	Mobility services	Can identify the options and requirements of infrastructure (including energy supply) for sustainable mobility and debate with key figures	Professional-Academic Competencies/ Technology	Mobility Management
	Innovative mobility strategies	Are able to analyze solution approaches for economic and strategic implementation and to develop these independently	Professional-Academic Competencies/ Technology	Mobility Management
	Mobility concepts	Can analyze and create mobility concepts and know strategies for mobility avoidance	Professional-Academic Competencies/ Technology	Mobility Management
	Optimization of the building stock	Knows the measures for preventive building security	Technical-scientific skills/ economics and management	Security Management
	Building security	Can evaluate dangers and derive safety measures	Technical-scientific skills/ economics and management	Security Management
Occupational fields of activity (depending on elective module 2)	Develops the efficiency and sustainability of a company	Knows the connection between sustainability goals and the circular economy and bioeconomy	Technical-scientific skills/ economics and management	Recycling Management and Bioeconomy
		Knows the technical and biological cycle for consumer products	Technical-scientific skills/ economics and management	Recycling Management and Bioeconomy
		Can evaluate the life cycle of a company's products	Technical-scientific skills/ economics and management	Recycling Management and Bioeconomy
	Analysis of potentials	Can identify value enhancement potential and measures for real estate portfolios	Technical-scientific skills/ economics and management	Asset and Portfolio Management
	Analysis of optimization potentials	Can prepare investment and potential analyses	Technical-scientific skills/ economics and management	Asset and Portfolio Management
		Can collect and evaluate key performance indicators for measuring performance	Technical-scientific skills/ economics and management	Asset and Portfolio Management

	Recovery activities	Can analyze objects within the scope of due diligence	Technical-scientific skills/ economics and management	Asset and Portfolio Management
	Occupancy planning and letting of properties	Can carry out vacancy analyses and know measures to reduce vacancies	Technical-scientific skills/ economics and management	Asset and Portfolio Management
Occupational fields of activity (depending on elective module 3)	Energy concepts in the building sector	Can understand, analyze, compare and critically question complex energy and building technology systems under dynamic conditions	Professional-Academic Competencies/ Technology	Energy and Building Simulation
	Building simulation	Can understand and apply the methods of a building simulation	Professional-Academic Competencies/ Technology	Energy and Building Simulation
		Know national and international certification systems	Professional-Academic Competencies/ Technology	Sustainable Building Certification
	Life cycle assessment	Can present life cycle analyzes (costs and ecology)	Professional-Academic Competencies/ Technology	Sustainable Building Certification

The following table 7 shows, as before, the skills and their associated modules, but these tasks, like skills, extend beyond vocational activities and therefore concern all fields of activity. In comparison to Tables 5 and 6, Table 7 lists all the remaining modules and skills from the curriculum and enables a holistic and objective perspective on the professional fields of activity.

Table 3: Competence descriptions for all occupational fields of activity

Occupational field of activity	Task	Skills description	Skills allocation	Curriculum/ modules
Energy & Environmental Policy		Are able to derive the main features of national and European energy and environmental policy from sustainability goals	Technical-scientific skills/ economics and management	Compendium Energy Economy & Sustainability
		Can evaluate support mechanisms and marketing concepts for renewable energies and efficiency measures from the company's point of view	Technical-scientific skills/ economics and management	Compendium Energy Economy & Sustainability
Renewable electricity and heat generation		Are able to describe technologies and procedures for the use of regenerative heat and electricity, as well as to name individual processes and present characteristic values	Professional-Academic Competencies/ Technology	Compendium of energy technologies
		Can discuss and evaluate requirements for the system integration of renewable energies into the general energy supply system	Professional-Academic Competencies/ Technology	Compendium of energy technologies
Communication with experts		Can name and apply marketing tools and communication concepts	Technical-scientific skills/ economics and management &	Marketing and Communications

Concerns all professional fields of activity			Personal and social skills / social skills	
	Work out problems	Can develop specialist knowledge to solve specific problems and implement specialist knowledge in a situation-appropriate manner	technical-scientific competences/ practical transfer & Personal and social skills / social skills	Practical Project
	Participation in internal procedures	Know methods and solution strategies in personnel management and are able to apply and implement them in organizational and personnel development	Technical-scientific skills/ economics and management	Strategic Business Management and HRM
		Can develop corporate strategies and design the corresponding implementation process	Technical-scientific skills/ economics and management	Strategic Business Management and HRM
		Can independently work out problems and solutions in a practical environment and implement technical knowledge in a situation-appropriate manner	technical-scientific competences/ practical transfer & Personal and social skills / social skills	Practical Project
	Project management	Can independently create project plans and define and structure project organizations	Technical-scientific skills/ economics and management & Personal and social skills/ practical transfer	Project Management
		Understands problems and can independently develop solutions in the practical environment as well as in research and development	technical-scientific competences/ practical transfer	Practice and Research Transfer
		Can work on projects with interdisciplinary content in an interdisciplinary manner	Professional-Academic Competencies/ Technology & Personal and Social Skills / Practice Transfer and Social Skills & International Competence	International Energy & Sustainability Management - Project
	Research activities	Are able to assess the strengths and areas of application of qualitative and quantitative methods of empirical research and apply them in an exemplary manner	technical-scientific competences/ practical transfer	Data Analysis and Empirical Methods
	Concerns all professional fields of activity	Methods of data analysis	Can select and implement data analysis in the context of a concrete problem	technical-scientific competences/ practical transfer
Know scientific methods and can describe and apply them			technical-scientific competences/ practical transfer	Data Analysis and Empirical Methods
		Can apply methods of science and research	technical-scientific competences/ practical transfer	Master Thesis and colloquium
Internal corporate communication	Can use different forms and concepts of communication	Technical-scientific skills/ economics and management & Personal and social skills / social skills	Marketing and Communications	

Concerns all professional fields of activity	Marketing strategies	Know phases and solution approaches for the implementation of marketing strategies	Technical-scientific skills/ economics and management & Personal and social skills / social skills	Marketing and Communications
		Can explain conceptual foundations and theoretical approaches of strategic marketing	Technical-scientific skills/ economics and management & Personal and social skills/ social skills	Marketing and Communications
	Intercultural work	Can combine learned facts and construct solution approaches to problems	technical-scientific competences/ practical transfer & Personal and Social Skills/ Social Skills & International Skills	International Energy & Sustainability Management - Practice, Research & Study Trip
		Can discuss the knowledge acquired in an international context	technical-scientific competences/ practical transfer & Personal and Social Skills/ Social Skills & International Skills	International Energy & Sustainability Management - Practice, Research & Study Trip
		Can independently develop and elaborate specialist topics and test and apply them using scientific methods	technical-scientific competences/ practical transfer	Master Thesis and colloquium
	Academic elaboration of a topic	Can apply scientific methods and their empirical investigations	technical-scientific competences/ practical transfer	Data Analysis and Empirical Methods
		Can research and prepare problem areas and findings	technical-scientific competences/ practical transfer	Data Analysis and Empirical Methods

2 CURRICULUM

2.1 Curriculum Data

	PT	Comment if applicable
First year of study (YYY/YY+1)	2021/2022	
Standard duration of study (number of semesters)	4	
Obligatory WSH (Total number for all sem.)	49.5	
Course weeks per semester (number of weeks)	15	
Obligatory course hours (Total for all sem.)	817.5	
Obligatory ECTS (Total for all sem.)	120	
WS start (Date, comm.: poss. CW)	CW 40	
WS end (Date, comm.: poss. CW)	CW 5	
SS start (Date, comm.: poss. CW)	CW 11	
SS end (Date, comm.: poss. CW)	CW 28	
WS weeks	15	
SS weeks	15	
Obligatory semester abroad (semester specification)	No	
Language of instruction (specify)	German	The proportion of English-language courses amounts to [Company Address]% of the WSH.
Internship (semester information, duration in weeks per semester)	No	
Resulting from the merging of the degree programs or from the separation from the degree program (StgKz; to be specified only for merging or separation)		

2.3 Curriculum matrix

Module assignment overview

Module	Module Title	Course title	WSH	ECTS	Sem.
APM	Asset and Portfolio Management	Asset and Portfolio Management (elective)*	2.5	5	2
CEBE	Recycling Management and Bioeconomy	Environmental Services and Bioeconomy (elective)*	2.5	5	2
DEM	Data Analysis and Empirical Methods	Data Analysis and Empirical Methods	2.5	5	2
EM	Energy Trading & Market Processes	Energy Trading & Market Processes	2.5	5	1
ENMK	Compendium Energy Management & Sustainability	Compendium Energy Management & Sustainability	2.5	5	1
ETK	Compendium of Energy Technologies	Compendium of Energy Technologies	2.5	5	1
IEK	Innovative energy concepts	Innovative energy concepts	2.5	5	1
IGM	Innovative business models	Innovative business models	2.5	5	2
IRM	Investment and Risk Management	Investment and Risk Management (E)	2.5	5	2
MA	Master Thesis and colloquium	Master Thesis and colloquium	1	24	4
MCO	Marketing and Communications	Marketing and Communication (E)	2.5	5	3
MHS	Market and trading strategies	Market and trading strategies	2.5	5	2
MOB	Mobility Management	Mobility Management (elective)*	2.5	5	2
NUC	Sustainability & Environmental Controlling	Sustainability & Environmental Controlling	2.5	5	3
PFE	Practice and Research Transfer	Practice and Research Transfer	1.5	3	4
PJ	Practical Project	Practical Project	2.5	5	3
PM	Project management	Project management	2.5	5	1
SBM	Strategic Business Management and HRM	Strategic Business Management and HRM (E)	2.5	5	1
SIM	Energy and Building Simulation	Energy and Building Simulation (elective)*	2.5	5	3
SM	Security Management	Security Management (elective)*	2.5	5	2
SMC	Smart Cities & Communities	Smart Cities & Communities	2.5	5	3
ST	International Energy & Sustainability Management Practice, Research & Study Trip	International Energy & Sustainability Management - Practice, Research & Study Trip (E)	2	3	4
WS	International Energy & Sustainability Management Project	International Energy & Sustainability Management - Project (E)	2.5	5	3
ZERT	Sustainable Building Certification	Sustainable building certification (elective)*	2.5	5	3
			49.5	120	

*... A total of six elective modules are offered, of which three modules must be chosen and successfully completed.

In the selection of the elective modules, 2x are available in the 2nd semester:

- Elective module 1: Mobility management or safety management
- Elective module 2: Recycling management and bioeconomy or asset and portfolio management

In the selection of elective modules, there is a choice of 2x in the 3rd semester:

- Elective module 3: Energy and building simulation or sustainable building certification

The following description of the courses does not include the work involved in supervising Master Theses. 0.6 weekly semester hours are planned per supervised thesis, i.e. for 20 students an additional 12 thesis weekly semester hours, which are incurred in the 4th semester. In total, an AWSH sum of 66.5 AWSH is achieved over all 4 semesters.

1st semester

Module no.	Module designation	Module type	T	E	eLV	WSH	No. of groups	AWSH	ALVS	MODULE	ECTS
EM	Energy Trading & Market Processes	ILV			30%	2.5	1	2.5	37.5	EM	5
ENMK	Compendium Energy Management & Sustainability	ILV			30%	2.5	1	2.5	37.5	ENMK	5
ETEK	Compendium of Energy Technologies	ILV	X		30%	2.5	1	2.5	37.5	ETK	5
IEK	Innovative energy concepts	ILV	X		30%	2.5	1	2.5	37.5	IEK	5
PM	Project management	ILV			30%	2.5	1	2.5	37.5	PM	5
SM	Strategic Business Management and HRM (E)	ILV		X	30%	2.5	1	2.5	37.5	SBM	5
Total line:								15.0			30
Course hours = Total WSH x module weeks								225.0			

2nd semester

Module no.	Module designation	Module type	T	E	eLV	WSH	No. of groups	AWSH	ALVS	MODULE	ECTS
APM	Asset and Portfolio Management (elective)*	ILV			30%	2.5	1	2.5	37.5	APM	5
CEBE	Environmental Services and Bioeconomy (elective)*	ILV			30%	2.5	1	2.5	37.5	CEBE	5
DEM	Data Analysis and Empirical Methods	ILV			50 %	2.5	1	2.5	37.5	DEM	5
IGM	Innovative business models	ILV			30%	2.5	1	2.5	37.5	IGM	5
IRM	Investment and Risk Management (E)	ILV		X	30%	2.5	1	2.5	37.5	IRM	5
MHS	Market and trading strategies	ILV			30%	2.5	1	2.5	37.5	MHS	5
MOB	Mobility Management (elective)*	ILV	X		30%	2.5	1	2.5	37.5	MOB	5
SM	Security Management (elective)*	ILV	X		30%	2.5	1	2.5	37.5	SM	5
Total line:								15.0			30
Course hours = Total WSH x module weeks								225.0			

3rd semester

Module no.	Module designation	Module type	T	E	eLV	WSH	No. of groups	AWSH	ALVS	MODULE	ECTS
MCO	Marketing and Communication (E)	ILV		X	30%	2.5	1	2.5	37.5	MCO	5
NUC	Sustainability & Environmental Controlling	ILV			30%	2.5	1	2.5	37.5	NUC	5
PJ	Practical Project	PT			0 %	2.5	2	5.0	75.0	PJ	5
SIM	Energy and Building Simulation (elective)*	ILV	X		30%	2.5	1	2.5	37.5	SIM	5
SMC	Smart Cities & Communities	ILV	X		30%	2.5	1	2.5	37.5	SMC	5
WS	International Energy & Sustainability Management - Project (E)	ILV	X	X	30%	2.5	2	5.0	75.0	WS	5
ZERT	Sustainable building certification (elective)*	ILV	X		30%	2.5	1	2.5	37.5	ZERT	5
Total line:						15.0		20.0	300.0		30
Course hours = Total WSH x module weeks						225.0					

4th semester

Module no.	Module designation	Module type	T	E	eLV	WSH	No. of groups	AWSH	ALVS	MODULE	ECTS
MA	Master Thesis and colloquium	ILV			50 %	1	1	1	15	MA	24*
PFE	Practice and Research Transfer	ILV			30%	1.5	1	1.5	22.5	PFE	3
ST	International Energy & Sustainability Management - Practice, Research & Study Trip (E)	ILV		X	30%	2	1	2	30	ST	3
Total line:						4.5		4.5	67.5		30
Course hours = Total WSH x module weeks						67.5					

* The 24 ECTS for the Master thesis and colloquium are divided into 20 ECTS for the Master thesis, 2 ECTS for the colloquium and 2 ECTS for the final examination.

Abbreviations	
eLV	E-learning proportion of course in percent
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 of curriculum data

Description	WSH	AWSH	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	12			23
Proportion of courses in English over all semesters based on WSH / ECTS	24.24 %			19.17 %
Proportion of eLearning units over all semesters based on WSH / ECTS	29.9 %			33.58 %

2.4 Module descriptions

Module number:	Energy Trading & Market Processes	Scope:	
		5	ECTS
EM			
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	1st semester		
Level	1st semester: Introduction and consolidation		
Previous knowledge	1st semester: no		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Energy Trading & Market Processes /ILV / Course no.: EM / 1st semester / ECTS: 5</u> <ul style="list-style-type: none"> • Schwintowsky, H., 2018. Handbuch Energiehandel. 4. Auflage. Berlin: Erich Schmidt Verlag • Zenke, I. und R. Schäfer, 2018. Energiehandel in Europa: Öl, Gas, Strom, Derivate, Zertifikate. 4. Auflage. München: C.H.Beck Verlag • Ströbele, W., W. Pfaffenberger, und M. Heuterkes, 2012. Energiewirtschaft: Einführung in Theorie und Politik. Oldenbourg: Wissenschaftsverlag 		
Acquisition of skills	<u>Energy Trading & Market Processes /ILV / Course no.: EM / 1st 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 optionalties 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 		
Course contents	<u>Energy Trading & Market Processes /ILV / Course no.: EM / 1st 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 		
Teaching and learning methods	<u>Energy Trading & Market Processes /ILV / Course no.: EM / 1st semester / ECTS: 5</u> Blended Learning		
Evaluation Methods Criteria	<u>Energy Trading & Market Processes /ILV / Course no.: EM / 1st semester / ECTS: 5</u> Written exam		

Module number:	Compendium Energy Management & Sustainability	Scope:	
		5	ECTS
ENMK			
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	1st semester		
Level	1st semester: Introduction and consolidation		
Previous knowledge	1st semester: no		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<p><u>Compendium Energy Economics & Sustainability /ILV / Course no.: ENMK / 1st semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Klees, A., 2012. Einführung in das Energiewirtschaftsrecht. Frankfurt am Main: Deutscher Fachverlag • Hering, E. und W. Schultz, 2018. Umweltschutztechnik und Umweltmanagement: Ein Kompendium für Studierende, Praktiker und Politiker. Wiesbaden: Springer Vieweg • Förtsch, G. und H. Meinholz, 2018. Handbuch Betriebliches Umweltmanagement. Wiesbaden: Springer Vieweg • Ennöckl, D., W. Raschauer, und W. Wessely, 2019. Handbuch Umweltrecht. Wien: Facultas • Konstantin, P., 2017. Praxisbuch Energiewirtschaft: Energieumwandlung, -transport und -beschaffung im liberalisierten Markt. 4. Auflage. Berlin: Springer-Verlag • Watter, H., 2019. Regenerative Energiesysteme: Grundlagen, Systemtechnik und Analysen ausgeführter Beispiele nachhaltiger Energiesysteme. 5. Auflage. Wiesbaden: Springer Vieweg 		
Acquisition of skills	<p><u>Compendium Energy Economics & Sustainability /ILV / Course no.: ENMK / 1st semester / ECTS: 5</u></p> <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	<p><u>Compendium Energy Economics & Sustainability /ILV / Course no.: ENMK / 1st semester / ECTS: 5</u></p> <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	<p><u>Compendium Energy Economics & Sustainability /ILV / Course no.: ENMK / 1st semester / ECTS: 5</u></p> <p>Blended Learning</p>		
Evaluation Methods Criteria	<p><u>Compendium Energy Economics & Sustainability /ILV / Course no.: ENMK / 1st semester / ECTS: 5</u></p> <p>Written exam</p>		

Module number:	Compendium of Energy Technologies	Scope:	
		5	ECTS
ETK			
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	1st semester		
Level	1st semester: Introduction and consolidation		
Previous knowledge	1st semester: no		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Compendium of Energy Technologies /ILV / Course no.: ETEK / 1st semester / ECTS: 5</u> • Herr, H., E. Bach und U. Maier, 2011. Technische Physik. 5. Auflage, Haan: Europa-Lehrmittel • Cerbe, G. und G. Wilhelms, 2013. Technische Thermodynamik. 17. Auflage. München: Carl Hanser • Tkotz, K., 2018. Fachkunde Elektrotechnik. 31. Auflage. Haan: Europa-Lehrmittel • Kaltschmitt, M., W. Streicher und A. Wiese, 2013. Erneuerbare Energien: Systemtechnik, Wirtschaftlichkeit, Umweltaspekte. 5. Auflage. Berlin, Heidelberg: Springer-Verlag		
Acquisition of skills	<u>Compendium of Energy Technologies /ILV / Course no.: ETEK / 1st semester / ECTS: 5</u> The students are able to: • 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 of Energy Technologies /ILV / Course no.: ETEK / 1st semester / ECTS: 5</u> • Electrochemistry • Mechanics • Thermodynamics • Electrical engineering • Design, operation and characteristics of power generation plants		
Teaching and learning methods	<u>Compendium of Energy Technologies /ILV / Course no.: ETEK / 1st semester / ECTS: 5</u> Blended Learning		
Evaluation Methods Criteria	<u>Compendium of Energy Technologies /ILV / Course no.: ETEK / 1st semester / ECTS: 5</u> Written exam		

Module number: IEK	Innovative energy concepts	Scope:	
		5	ECTS
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	1st semester		
Level	1st semester: Introduction and consolidation		
Previous knowledge	1st semester: no		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Innovative energy concepts /ILV / Course no.: IEK / 1st semester / ECTS: 5</u> <ul style="list-style-type: none"> • Buchholz, B., Stycynski, Z., 2018. Smart Grids: Grundlagen und Technologien der elektrischen Netze der Zukunft. Berlin: VDE Verlag • Flosdorff, R. und G. Hilgarth, 2017. Elektrische Energieverteilung. 10. Auflage. Wiesbaden: Vieweg+Teubner Verlag • Sillaber, A., 2016. Leitfaden zur Verteilnetzplanung und Systemgestaltung - Entwicklung dezentraler Elektrizitätssysteme. Wiesbaden: Springer Vieweg • Behrens, W., et al., 2009. Technisches Handbuch Fernwärme. 2. Auflage. AGFW-Projektgesellschaft für Rationalisierung • Erhorn-Kluttig, H., et al., 2011. Energetische Quartiersplanung Methoden - Technologien - Praxisbeispiele. Fraunhofer IRB Verlag 		
Acquisition of skills	<u>Innovative energy concepts /ILV / Course no.: IEK / 1st 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 / Course no.: IEK / 1st 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 / Course no.: IEK / 1st semester / ECTS: 5</u> Blended Learning		
Evaluation Methods Criteria	<u>Innovative energy concepts /ILV / Course no.: IEK / 1st semester / ECTS: 5</u> Seminar thesis		

Module number:	Project management	Scope:	
		5	ECTS
PM			
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	1st semester		
Level	1st semester: Introduction and consolidation		
Previous knowledge	1st semester: no		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<p><u>Project Management /ILV / Course no.: PM / 1st semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Patzak, G., Rattay, G., 2017, Projektmanagement: Leitfaden zum Management von Projekten, Projektportfolios und projektorientierten Unternehmen, Wien, Linde • PMI (Hrsg.), 2017, PMBOK - Project Management Body of Knowledge, 6th Edition, Newtown Square, PMI • Preußig, J. (2018). Agiles Projektmanagement: Agilität und Scrum im klassischen Projektumfeld, Freiburg, Haufe Verlag • Timinger, H. (2017). Modernes Projektmanagement: Mit traditionellem, agilem und hybridem Vorgehen zum Erfolg, Weinheim, Wiley Verlag 		
Acquisition of skills	<p><u>Project Management /ILV / Course no.: PM / 1st semester / ECTS: 5</u></p> <p>The students are able to:</p> <ul style="list-style-type: none"> • Define various tasks in project management • Define and structure project organizations • Independently create project plans • Develop and implement a project controlling system • Respond agilely to problems and obstacles depending on the situation • Lead projects in different fields to success 		
Course contents	<p><u>Project Management /ILV / Course no.: PM / 1st semester / ECTS: 5</u></p> <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	<p><u>Project Management /ILV / Course no.: PM / 1st semester / ECTS: 5</u></p> <p>Blended Learning</p>		
Evaluation Methods Criteria	<p><u>Project Management /ILV / Course no.: PM / 1st semester / ECTS: 5</u></p> <p>Project and examination</p>		

Module number:	Strategic Business Management and HRM	Scope:	
		5	ECTS
SBM			
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	1st semester		
Level	1st semester: Introduction and consolidation		
Previous knowledge	1st semester: no		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<p><u>Strategic Business Management and HRM (E) /ILV / Course no.: SM / 1st semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Thommen, J.-P., ed., et al., 2017. Allgemeine Betriebswirtschaftslehre: Umfassende Einführung aus managementorientierter Sicht. 8. Aufl.. Wiesbaden: Springer Gabler • Horváth, P., 2004. Die Strategieumsetzung erfolgreich steuern. Stuttgart: Schäffer-Poeschel • Holtbrügge, D., 2018. Personalmanagement. 7. Aufl.. Berlin: Springer • Stöger, R., 2016. Die Toolbox für Manager: Strategie, Innovation, Organisation, Produktivität, Projekte, Change.2. überarbeitete Auf.. Stuttgart: Schäffer-Poeschel 		
Acquisition of skills	<p><u>Strategic Business Management and HRM (E) /ILV / Course no.: SM / 1st semester / ECTS: 5</u></p> <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	<p><u>Strategic Business Management and HRM (E) /ILV / Course no.: SM / 1st semester / ECTS: 5</u></p> <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	<p><u>Strategic Business Management and HRM (E) /ILV / Course no.: SM / 1st semester / ECTS: 5</u></p> <p>Blended Learning</p>		
Evaluation Methods Criteria	<p><u>Strategic Business Management and HRM (E) /ILV / Course no.: SM / 1st semester / ECTS: 5</u></p> <p>Seminar thesis</p>		

Module number:	Asset and Portfolio Management	Scope:	
		5	ECTS
APM			
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	2nd semester		
Level	2nd semester: Introduction and consolidation		
Previous knowledge	2nd semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<p><u>Asset and Portfolio Management (elective)* /ILV / Course no.: APM / 2nd semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Uddin, W., W. Hudson und R. Haas, 2013. Public Infrastructure Asset Management. New York: McGraw-Hill Education • Balzer, G., Schorn, C., 2020. Asset Management für Infrastrukturanlagen - Energie und Wasser. 3. Auflage. Wiesbaden: Springer Vieweg • Gondring, H., Wagner, T. (Hrsg.), 2010. Real Estate Asset Management - Handbuch für Praxis, Aus- und Weiterbildung. 1. Auflage. München: Vahlen. • Malloth, T. (Hrsg.), 2013. Immobilienmanagement Österreich. 5. Auflage. Wien: ÖVI 		
Acquisition of skills	<p><u>Asset and Portfolio Management (elective)* /ILV / Course no.: APM / 2nd semester / ECTS: 5</u></p> <p>The students are able to:</p> <ul style="list-style-type: none"> • Identifying potential for increasing the value of properties and portfolios • Planning and coordinating due diligence • Defining and evaluating property and portfolio-related optimization measures • Preparing commercial budgeting for inventories • Preparing and analyzing investment decisions 		
Course contents	<p><u>Asset and Portfolio Management (elective)* /ILV / Course no.: APM / 2nd semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Performance profiles and requirements, occupational profiles • Capital market theories and objects as asset classes • Performance measurement • Due Diligence process • Investment and potential analyses • Asset management 		
Teaching and learning methods	<p><u>Asset and Portfolio Management (elective)* /ILV / Course no.: APM / 2nd semester / ECTS: 5</u></p> <p>Blended Learning</p>		
Evaluation Methods Criteria	<p><u>Asset and Portfolio Management (elective)* /ILV / Course no.: APM / 2nd semester / ECTS: 5</u></p> <p>Project</p>		

Module number: CEBE	Recycling Management and Bioeconomy	Scope:	
		5	ECTS
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	2nd semester		
Level	2nd semester: Introduction and consolidation		
Previous knowledge	2nd semester: basic business administration knowledge at Bachelor level		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<p><u>Environmental services and bioeconomy (elective)* /ILV / Course no.: CEBE / 2nd semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Bilitewski, B., and G. Härdtle, 2013. Abfallwirtschaft: Handbuch für Praxis und Lehre. 4th edition Berlin, Heidelberg: Springer Vieweg • Kranert, M., 2017. Einführung in die Kreislaufwirtschaft: Planung-Recht-Verfahren. 5th edition Wiesbaden: Springer Vieweg • Frötsch, G., and H. Meinholz, 2015. Handbuch Betriebliche Kreislaufwirtschaft. Wiesbaden: Springer Spektrum • Pietzsch, J. (publisher), 2017. Bioökonomie für Einsteiger. Heidelberg: Springer Spektrum 		
Acquisition of skills	<p><u>Environmental services and bioeconomy (elective)* /ILV / Course no.: CEBE / 2nd semester / ECTS: 5</u></p> <p>The students are able to:</p> <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	<p><u>Environmental services and bioeconomy (elective)* /ILV / Course no.: CEBE / 2nd semester / ECTS: 5</u></p> <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	<p><u>Environmental services and bioeconomy (elective)* /ILV / Course no.: CEBE / 2nd semester / ECTS: 5</u></p> <p>Blended Learning</p>		
Evaluation Methods Criteria	<p><u>Environmental services and bioeconomy (elective)* /ILV / Course no.: CEBE / 2nd semester / ECTS: 5</u></p> <p>Seminar thesis and examination</p>		

Module number:	Data Analysis and Empirical Methods	Scope:	
		5	ECTS
DEM			
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	2nd semester		
Level	2nd semester: Introduction and consolidation		
Previous knowledge	2nd semester: academic work and empirical methods at Bachelor level		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<p><u>Data analysis and Empirical Methods /ILV / Course no.: DEM / 2nd semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • James, G., Witten, D., Hastie, T., Tibshirani, R. 2013. An Introduction to Statistical Learning with Applications in R. Springer. New York. • Chakrabarti, A., L. Pichl and T. Kaizoji (publisher), 2019. Network Theory and Agent-Based Modeling in Economics and Finance. Singapore: Springer Nature • Stocker, H. 2014. Ökonometrie: Fundamentals and methods. Pearson Studium - Economic VWL • Fahrmeir, L., R. Künstler, I. Pigeot, I. and G. Tutz, 2012. Statistics: Der Weg zur Datenanalyse. 7th edition. Berlin: Springer • Fahrmeir, L., Kneib, T. and Lang, S., 2009. Regression: Modelle, Methoden und Anwendungen. 2nd edition. Berlin: Springer • Heisen, M. R., Theisen, M., 2017. Wissenschaftliches Arbeiten: erfolgreich bei Bachelor- und Masterarbeit. Munich: Franz Vahlen 		
Acquisition of skills	<p><u>Data analysis and Empirical Methods /ILV / Course no.: DEM / 2nd semester / ECTS: 5</u></p> <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	<p><u>Data analysis and Empirical Methods /ILV / Course no.: DEM / 2nd semester / ECTS: 5</u></p> <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	<p><u>Data analysis and Empirical Methods /ILV / Course no.: DEM / 2nd semester / ECTS: 5</u></p> <p>Blended Learning</p>		
Evaluation Methods Criteria	<p><u>Data analysis and Empirical Methods /ILV / Course no.: DEM / 2nd semester / ECTS: 5</u></p> <p>Portfolio</p>		

Module number:	Innovative business models	Scope:	
		5	ECTS
IGM			
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	2nd semester		
Level	2nd semester: Consolidation		
Previous knowledge	2nd semester: Module Innovative Energy Concepts		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<p><u>Innovative business concepts /ILV / Course no.: IGM / 2nd semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Guan, C., Z. Jiang, and D. Ding, 2020. The Emerging Business Models. Singapore: World Scientific Publishing Companys Pte Limited • Rogers, E., 2016. Diffusion of Innovations Simon and Schuster International. 5th edition New York: Free Press • Kelley, T., 2016. The Art of Innovation. London: Profile Books Verlag • Köhler-Schute, C., 2011. Wettbewerbsorientierter Vertrieb in der Energiewirtschaft: Kundenverlustprävention, neue Geschäftsfelder und Produkte, optimierte Geschäftsprozesse. 2nd edition. Berlin: KS-Energy-Verlag • Lewrick, M. et al., 2018. Das Design Thinking Playbook: Mit traditionellen, aktuellen und zukünftigen Erfolgsfaktoren. Munich: Vahlen 		
Acquisition of skills	<p><u>Innovative business concepts /ILV / Course no.: IGM / 2nd semester / ECTS: 5</u></p> <p>The students are able to:</p> <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	<p><u>Innovative business concepts /ILV / Course no.: IGM / 2nd semester / ECTS: 5</u></p> <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	<p><u>Innovative business concepts /ILV / Course no.: IGM / 2nd semester / ECTS: 5</u></p> <p>Blended Learning</p>		
Evaluation Methods Criteria	<p><u>Innovative business concepts /ILV / Course no.: IGM / 2nd semester / ECTS: 5</u></p> <p>Portfolio</p>		

Module number:	Investment and Risk Management	Scope:	
		5	ECTS
IRM			
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	2nd semester		
Level	2nd semester: Introduction and consolidation		
Previous knowledge	2nd semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Investment and Risk Management (E) /ILV / Course no.: IRM / 2nd semester / ECTS: 5</u> <ul style="list-style-type: none"> • Hull, J.: Risk Management and Financial Institutions, 5th edition, Wiley, 2018 • Hull, J.: Options, Futures, and Other Derivatives, Global Edition, 9th edition, Pearson, 2017 • Geyer, A., Hanke, M., Littich, E., Nettekoven, M.: Grundlagen der Finanzierung, 5th edition, Vienna: Manz, 2015 		
Acquisition of skills	<u>Investment and Risk Management (E) /ILV / Course no.: IRM / 2nd 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 and Risk Management (E) /ILV / Course no.: IRM / 2nd 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 and Risk Management (E) /ILV / Course no.: IRM / 2nd semester / ECTS: 5</u> Blended Learning		
Evaluation Methods Criteria	<u>Investment and Risk Management (E) /ILV / Course no.: IRM / 2nd semester / ECTS: 5</u> Written exam		

Module number:	Market and trading strategies	Scope:	
		5	ECTS
MHS			
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	2nd semester		
Level	2nd semester: Consolidation		
Previous knowledge	2nd semester: Module Energy Trading & Market Processes		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<p><u>Market and Trading Strategies /ILV / Course no.: MHS / 2nd semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Schwintowsky, H., 2018. Handbuch Energiehandel, 4th edition, Berlin: Erich Schmidt Verlag • Zenke, I. and R. Schäfer, 2018. Energiehandel in Europa: Öl, Gas, Strom, Derivate, Zertifikate. 4th edition. Munich: C.H.Beck Verlag • Ströbele, W., W. Pfaffenberger, and M. Heuterkes, 2012. Energiewirtschaft: Einführung in Theorie und Politik. Oldenbourg: Wissenschaftsverlag 		
Acquisition of skills	<p><u>Market and Trading Strategies /ILV / Course no.: MHS / 2nd semester / ECTS: 5</u></p> <p>The students are able to:</p> <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	<p><u>Market and Trading Strategies /ILV / Course no.: MHS / 2nd semester / ECTS: 5</u></p> <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	<p><u>Market and Trading Strategies /ILV / Course no.: MHS / 2nd semester / ECTS: 5</u></p> <p>Blended Learning</p>		
Evaluation Methods Criteria	<p><u>Market and Trading Strategies /ILV / Course no.: MHS / 2nd semester / ECTS: 5</u></p> <p>Project and examination</p>		

Module number: MOB	Mobility Management	Scope:	
		5	ECTS
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	2nd semester		
Level	2nd semester: Introduction and consolidation		
Previous knowledge	2nd semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<p><u>Mobility Management (elective)* /ILV / Course no.: MOB / 2nd semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Flügge, B. (publisher) 2020. Smart Mobility - Trends, Konzepte, Best Practices für die intelligente Mobilität. Wiesbaden: Springer Vieweg • Gather, M., et al (publisher). Studien zur Mobilitäts- und Verkehrsforschung (series). Wiesbaden: VS Verlag für Sozialwissenschaften • Vallée, D., Engel, B., Vogt, W. (publisher). Stadtverkehrsplanung Volumes 1-3. Wiesbaden: Springer Vieweg 		
Acquisition of skill	<p><u>Mobility Management (elective)* /ILV / Course no.: MOB / 2nd semester / ECTS: 5</u></p> <p>The students are able to:</p> <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	<p><u>Mobility Management (elective)* /ILV / Course no.: MOB / 2nd semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Social aspects of mobility • 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	<p><u>Mobility Management (elective)* /ILV / Course no.: MOB / 2nd semester / ECTS: 5</u></p> <p>Blended Learning</p>		
Evaluation Methods Criteria	<p><u>Mobility Management (elective)* /ILV / Course no.: MOB / 2nd semester / ECTS: 5</u></p> <p>Portfolio</p>		

Module number:	Security Management	Scope:	
		5	ECTS
SM			
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	2nd semester		
Level	2nd semester: Introduction and consolidation		
Previous knowledge	2nd semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<p><u>Safety management (elective)* /ILV / Course no.: SM / 2nd semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Gartner, H., Kothbauer, C., and K. Poschalko., 2018. Haftung für Gebäudesicherheit. Vienna: MANZ Verlag • Swoboda, M., and A. Schwarz-Hausmann, 2018. Praxishandbuch Brandschutz: Rechtliche und technische Grundlagen, Umsetzung, Haftungen. 3. Aufl., Brunn am Gebirge: TÜV Austria Fachverlag • Mayr, J., and L. Battran, 2011. Handbuch Brandschutzatlas: Grundlagen Planung Ausführung, Köln: Feuertrutz 		
Acquisition of skills	<p><u>Safety management (elective)* /ILV / Course no.: SM / 2nd semester / ECTS: 5</u></p> <p>The students are able to:</p> <ul style="list-style-type: none"> • analyze different dangers in infrastructure, object and building security and derive protective measures • develop risk analyses and emergency plans • describe and apply the tasks of a security officer 		
Course contents	<p><u>Safety management (elective)* /ILV / Course no.: SM / 2nd semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Occupational health and safety <ul style="list-style-type: none"> o Workplace design and evaluation o Dangerous working materials o Rights and duties of employees and employers o Tasks (focus on safety) of preventive services, Safety officers and works council • Fire protection • Perimeter security and burglary protection • Risk analyses and business continuity management • Property security checks • Security concepts 		
Teaching and learning methods	<p><u>Safety management (elective)* /ILV / Course no.: SM / 2nd semester / ECTS: 5</u></p> <p>Blended Learning</p>		
Evaluation Methods Criteria	<p><u>Safety management (elective)* /ILV / Course no.: SM / 2nd semester / ECTS: 5</u></p> <p>Written exam</p>		

Module number:	Marketing and Communications	Scope:	
		5	ECTS
MCO			
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	3rd semester		
Level	3rd semester: Introduction and consolidation		
Previous knowledge	3rd semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<p><u>Marketing and Communications /ILV / Course no.: MCO / 3rd semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Homburg, C., 2017, Marketing Management. Strategie – Instrumente - Umsetzung - Unternehmensführung, 6th edition, Wiesbaden, Springer Gabler • Benighaus, C., Wachinger, G., Renn, O., 2016. Citizen participation: Concepts and possible solutions in practice. Frankfurt am Main: Wolfgang Metzner Verlag • Sommer, J. (publisher). Kursbuch Bürgerbeteiligung (Reihe). Osnabrück: Verlag der Deutschen Umweltstiftung • Koschany-Rohbeck, M. 2018. Praxishandbuch Wirtschaftsmediation. Berlin: Springer Gabler • Schweizer, A and S. Kracht. Konfliktlösung ohne Gericht - Wirtschaftsmediation, Coaching, Nachhaltigkeit (Band 1-3). Berlin: BWV Wissenschaft-Verlag 		
Acquisition of skills	<p><u>Marketing and Communications /ILV / Course no.: MCO / 3rd 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 and Communications /ILV / Course no.: MCO / 3rd 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 and Communications /ILV / Course no.: MCO / 3rd semester / ECTS: 5</u></p> <p>Blended Learning</p>		
Evaluation Methods Criteria	<p><u>Marketing and Communications /ILV / Course no.: MCO / 3rd 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 Part-time		
Position in the curriculum	3rd semester		
Level	3rd semester: Consolidation		
Previous knowledge	3rd semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<p><u>Sustainability & Environmental Controlling /ILV / Course no.: NUC / 3rd semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Lenitz, M., 2018. Managementsysteme richtig auditieren: Die Anwendung der ÖNORM EN ISO 19011:2018 in der Praxis. Vienna: Austrian Standards plus • Brauweiler, J., et al., 2018. Umweltmanagementsysteme nach ISO 14001: Grundwissen für Praktiker (essentials). Berlin: Springer Gabler • Engelfried, J., 2016. Nachhaltiges Umweltmanagement - Schritt für Schritt: Arbeitsbuch. Stuttgart: utb • Fifka, M. S., 2014. CSR und Reporting. Berlin: Gabler Verlag • Colsman, B., 2016. Nachhaltigkeitscontrolling: Strategien, Ziele, Umsetzung. 2nd edition Wiesbaden: Gabler Verlag 		
Acquisition of skills	<p><u>Sustainability & Environmental Controlling /ILV / Course no.: NUC / 3rd semester / ECTS: 5</u></p> <p>The students are able to:</p> <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	<p><u>Sustainability & Environmental Controlling /ILV / Course no.: NUC / 3rd semester / ECTS: 5</u></p> <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	<p><u>Sustainability & Environmental Controlling /ILV / Course no.: NUC / 3rd semester / ECTS: 5</u></p> <p>Blended Learning</p>		
Evaluation Methods Criteria	<p><u>Sustainability & Environmental Controlling /ILV / Course no.: NUC / 3rd semester / ECTS: 5</u></p> <p>Seminar thesis</p>		

Module number:	Practical Project	Scope:	
		5	ECTS
PJ			
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	3rd semester		
Level	3rd semester: Consolidation		
Previous knowledge	3rd semester: Module Project Management and all course contents from the 1st, 2nd and 3rd semester		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<p><u>Practical Project /PT / Course no.: PJ / 3rd semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Patzak, G., Rattay, G., 2017, Projektmanagement: Leitfaden zum Management von Projekten, Projektportfolios und projektorientierten Unternehmen, Wien, Linde • PMI (publisher), 2017, PMBOK - Project Management Body of Knowledge, 6th Edition, Newtown Square, PMI • Preußig, J. (2018). Agiles Projektmanagement: Agilität und Scrumim klassischen Projektumfeld, Freiburg, Haufe Verlag • Timinger, H. (2017). Modernes Projektmanagement: Mit traditionellem, agilem und hybridem Vorgehen zum Erfolg, Weinheim, Wiley Verlag 		
Acquisition of skills	<p><u>Practical Project /PT / Course no.: PJ / 3rd semester / ECTS: 5</u></p> <p>The students are able to:</p> <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	<p><u>Practical Project /PT / Course no.: PJ / 3rd semester / ECTS: 5</u></p> <p>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.</p>		
Teaching and learning methods	<p><u>Practical Project /PT / Course no.: PJ / 3rd semester / ECTS: 5</u></p> <p>Problem and Project Based Learning</p>		
Evaluation Methods Criteria	<p><u>Practical Project /PT / Course no.: PJ / 3rd semester / ECTS: 5</u></p> <p>Project</p>		

Module number: SIM	Energy and Building Simulation	Scope:	
		5	ECTS
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	3rd semester		
Level	3rd semester: Introduction and consolidation		
Previous knowledge	3rd semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<p><u>Energy and Building Simulation (elective)* /ILV / Course no.: SIM / 3rd semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Pistohl, W., 2009. Building services engineering I. Neuwied: Werner • Pistohl, W., 2009. Building services engineering II. Neuwied: Werner • Daniels, K., 2000. Gebäudetechnik. Ein Leitfaden für Architekten und Ingenieure. Munich: Oldenbourg • Willems, W., et al., 2010. Formeln und Tabellen Bauphysik: Wärmeschutz - Feuchteschutz - Klima - Akustik - Brandschutz. Wiesbaden: Vieweg+Teubner • Fouad, N. (publisher), 2000. Bauphysik-Kalender. Berlin: Ernst and Son 		
Acquisition of skills	<p><u>Energy and Building Simulation (elective)* /ILV / Course no.: SIM / 3rd semester / ECTS: 5</u></p> <p>The students are able to:</p> <ul style="list-style-type: none"> • understand, analyze and compare complex energy and building technology systems under dynamic conditions and question them critically • understand and apply building simulation methods • derive different conditions of a building simulation from the corresponding sources and assess the plausibility • select different software for the corresponding areas • question simulation results critically and perform an error analysis 		
Course contents	<p><u>Energy and Building Simulation (elective)* /ILV / Course no.: SIM / 3rd semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Requirements of building services engineering for building clusters and special properties • Networked building services engineering • Basics of thermal and energetic building and building services engineering simulation • Simulation software • Comparison of static and dynamic consideration 		
Teaching and learning methods	<p><u>Energy and Building Simulation (elective)* /ILV / Course no.: SIM / 3rd semester / ECTS: 5</u></p> <p>Blended Learning</p>		
Evaluation Methods Criteria	<p><u>Energy and Building Simulation (elective)* /ILV / Course no.: SIM / 3rd semester / ECTS: 5</u></p> <p>Project</p>		

Module number:	Smart Cities & Communities	Scope:	
		5	ECTS
SMC			
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	3rd semester		
Level	3rd semester: Consolidation		
Previous knowledge	3rd semester: Module Innovative Energy Concepts		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Smart Cities & Communities /ILV / Course no.: SMC / 3rd semester / ECTS: 5</u> <ul style="list-style-type: none"> • Buchholz, B., Stycynski, Z., 2018. Smart Grids: Grundlagen und Technologien der elektrischen Netze der Zukunft. Berlin: VDE Verlag • Erhorn-Kluttig, H., et al., 2011. Energetische Quartiersplanung Methoden - Technologien - Praxisbeispiele. Fraunhofer IRB Verlag • Jaekel, M., 2015. Smart City wird Realität: Wegweiser für neue Urbanitäten in der Digitalmoderne. Wiesbaden: Springer Vieweg 		
Acquisition of skills	<u>Smart Cities & Communities /ILV / Course no.: SMC / 3rd 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 / Course no.: SMC / 3rd 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 / Course no.: SMC / 3rd semester / ECTS: 5</u> Blended Learning		
Evaluation Methods Criteria	<u>Smart Cities & Communities /ILV / Course no.: SMC / 3rd 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 Part-time		
Position in the curriculum	3rd semester		
Level	3rd semester: Consolidation		
Previous knowledge	3rd 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 (E) /ILV / Course no.: WS / 3rd semester / ECTS: 5</u> The literature is based on the project topics dealt with.		
Acquisition of skills	<u>International Energy & Sustainability Management - Project (E) /ILV / Course no.: WS / 3rd 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 (E) /ILV / Course no.: WS / 3rd 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 (E) /ILV / Course no.: WS / 3rd semester / ECTS: 5</u> Problem and project-based learning, excursion, conference participation		
Evaluation Methods Criteria	<u>International Energy & Sustainability Management - Project (E) /ILV / Course no.: WS / 3rd semester / ECTS: 5</u> Project		

Module number:	Sustainable Building Certification	Scope:	
		5	ECTS
ZERT			
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	3rd semester		
Level	3rd semester: Introduction and consolidation		
Previous knowledge	3rd semester: none		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<p><u>Sustainable building certification (elective)* /ILV / Course no.: ZERT / 3rd semester / ECTS: 5</u></p> <ul style="list-style-type: none"> • Wallbaum, H., Kytzia, S., and S. Kellenberger, 2011. Nachhaltig Bauen: Lebenszyklus, Systeme, Szenarien, Verantwortung. Zürich: Vdf Hochschulverlag • König, H., ed. , et al., 2009. Lebenszyklusanalyse in der Gebäudeplanung: Grundlagen - Berechnung - Planungswerkzeuge. Munich: Ins. f. Int. Architektur • Kummert, K., May, M., and A. Pelzeter, 2013. Nachhaltiges Facility Management. Berlin, Heidelberg: Springer Vieweg 		
Acquisition of skills	<p><u>Sustainable building certification (elective)* /ILV / Course no.: ZERT / 3rd semester / ECTS: 5</u></p> <p>The students are able to:</p> <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	<p><u>Sustainable building certification (elective)* /ILV / Course no.: ZERT / 3rd semester / ECTS: 5</u></p> <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	<p><u>Sustainable building certification (elective)* /ILV / Course no.: ZERT / 3rd semester / ECTS: 5</u></p> <p>Blended Learning</p>		
Evaluation Methods Criteria	<p><u>Sustainable building certification (elective)* /ILV / Course no.: ZERT / 3rd semester / ECTS: 5</u></p> <p>Project and seminar thesis</p>		

Module number:	Master Thesis and colloquium	Scope:	
		24	ECTS
MA			
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	4th semester		
Level	4th semester: Consolidation		
Previous knowledge	4th 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	<p><u>Master thesis and colloquium /ILV / Course no.: MA / 4th semester / ECTS: 24</u></p> <ul style="list-style-type: none"> • Heisen, M. R. and M. Theisen, 2017. Wissenschaftliches Arbeiten: erfolgreich bei Bachelor- und Masterarbeit. Munich: Franz Vahlen • Sandberg, B., 2017. Wissenschaftliches Arbeiten von Abbildung bis Zitat: Lehr- und Übungsbuch für Bachelor, Master und Promotion. 3rd edition. Berlin, Boston: De Gruyter Oldenbourg • Reinders, H. et al., 2011. Empirische Bildungsforschung: Strukturen und Methoden. Wiesbaden: VS Verlag für Sozialwissenschaften 		
Acquisition of skills	<p><u>Master thesis and colloquium /ILV / Course no.: MA / 4th semester / ECTS: 24</u></p> <p>The students are able to:</p> <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	<p><u>Master thesis and colloquium /ILV / Course no.: MA / 4th semester / ECTS: 24</u></p> <p>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.</p> <p>In the context of a colloquium with the scope of 2 ECTS = 50h, the following course contents are dealt with:</p> <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 <p>• Information on the final Master's examination</p> <p>The preparation for the final examination is included with 2 ECTS = 50h.</p>		
Teaching and learning methods	<p><u>Master thesis and colloquium /ILV / Course no.: MA / 4th semester / ECTS: 24</u></p> <p>Blended Learning</p>		
Evaluation Methods Criteria	<p><u>Master thesis and colloquium /ILV / Course no.: MA / 4th semester / ECTS: 24</u></p> <p>Master thesis and presentation</p>		

Module number: PFE	Practice and Research Transfer	Scope:	
		3	ECTS
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	4th semester		
Level	4th semester: Consolidation		
Previous knowledge	4th semester: Module Data Analysis and Empirical Methods		
Blocked	no		
Participant group	Bachelor graduates, beginners		
Literature recommendation	<u>Practice and Research Transfer /ILV / Course no.: PFE / 4th semester / ECTS: 3</u> current professional articles, professional journals and project reports		
Acquisition of skills	<u>Practice and Research Transfer /ILV / Course no.: PFE / 4th 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>Practice and Research Transfer /ILV / Course no.: PFE / 4th 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>Practice and Research Transfer /ILV / Course no.: PFE / 4th semester / ECTS: 3</u> Blended Learning		
Evaluation Methods Criteria	<u>Practice and Research Transfer /ILV / Course no.: PFE / 4th semester / ECTS: 3</u> Portfolio		

Module number: ST	International Energy & Sustainability Management - Practice, Research & Study Trip	Scope:	
		3	ECTS
Degree program	University of Applied Sciences Master's Program - Energy & Sustainability Management Part-time		
Position in the curriculum	4th semester		
Level	4th semester: Consolidation		
Previous knowledge	4th 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 (E) /ILV / Course no.: ST / 4.</u> <ul style="list-style-type: none"> • Thomas, A. (Ed.) (2003). Handbuch Interkulturelle Kommunikation und Kooperation. Bd. 1: Grundlagen und Praxisfelder. Göttingen: Vandenhoeck and Ruprecht • Thomas, A. (publisher), 2003. Handbuch Interkulturelle Kommunikation und Kooperation. Bd. 2: Grundlagen und Praxisfelder. Göttingen: Vandenhoeck and Ruprecht • Jones, E.: Cultures Merging. Princeton: Princeton University Press <p>Further literature depends on the respective field trip destination.</p>		
Acquisition of skills	<u>International Energy & Sustainability Management - Practice, Research & Study Trip (E) /ILV / Course no.: ST / 4.</u> The students are able to: <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 (E) /ILV / Course no.: ST / 4.</u> 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: <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 (E) /ILV / Course no.: ST / 4.</u> Lecture, discussion and excursion		
Evaluation Methods Criteria	<u>International Energy & Sustainability Management - Practice, Research & Study Trip (E) /ILV / Course no.: ST / 4.</u> Portfolio		

2.5 Internship

Internship (semester information, duration in weeks per semester)	No	No
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2.6 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 of the FHG (Fachhochschule Studies Act) as amended, according to which the subject-related admission requirement for a Fachhochschule Master's degree program is a completed University of Applied Sciences Bachelor degree program relevant to the subject or the completion of an equivalent degree program at a recognized domestic or foreign post-secondary educational institution.

1. For the purposes of the present application, Bachelor's degree programs or equivalent post-secondary educational qualifications in the social and economic sciences, natural sciences and mathematics, information and technology, and engineering (based on ISCED 2013, Fields of Education and Training 03/04/05/06/07), which cover the following core subject areas (based on ISCED 2013, Fields of Education and Training) are considered relevant to the subject area in question, in summary, in a total amount of at least 30 ECTS:
 - 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 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 support engineering, production and construction

2. The FH Kufstein Tirol provides in its course architecture for a networking of the Bachelor and Master programs in the sense of the Bologna process: Following successful completion of a Bachelor's degree, graduates have several options for a Master's degree course at and outside the FH Kufstein Tirol. Graduates of the following degree programs of the FH Kufstein Tirol (irrespective of the organizational form) would be admitted to the present Master's degree program on the basis of the above-mentioned professional qualifications and on the basis of the broad entry possibilities of the degree program:
 - Energy management or energy and sustainability management
 - Facility and Real Estate Management
 - International Business Studies
 - Marketing and Communication Management
 - Sports, Culture and Event Management
 - Business Management
 - Web Business and Technology
 - Industrial Engineering and Management

3. The languages of instruction and examination at the FH Kufstein Tirol are German and English across all degree programs. Students from non-German speaking countries must therefore provide appropriate evidence of their German language skills.
4. Examining the fulfillment of the admission requirements is the responsibility of the Master's program in Energy and Sustainability Management Director of Studies.