

Study regulations of the Bachelor's course

Energy & Sustainability Management

To obtain the academic degree

Bachelor of Arts in Business
abbreviated BA

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

Organizational form: full-time

Duration: 6

Scope: 180 ECTS

Places for beginners per academic year: 8

Version 1

Adopted by the Faculty on May 6, 2026

Program starts WS 2027/28

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1 OCCUPATIONAL PROFILES

1.1 Career opportunities

The broad-based skill set provided by the Energy & Sustainability Management program opens up a wide range of international career opportunities for graduates. They are equipped to design complex energy and resource systems, develop strategies to strengthen resilience and security of supply, and balance economic and environmental requirements.

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

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

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

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

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

Employment opportunities for graduates in the following sectors:

- **Energy companies, utilities, and energy service providers**
 - Roles in energy trading, generation and procurement portfolios, renewable energy system integration, grid and flexibility management
 - Entry-level roles, e.g., junior energy trader/analyst, portfolio or market analyst, project coordinator for renewables/energy efficiency, sustainability/energy performance analyst
- **Manufacturing and service industries with a transformation agenda**

- Energy and resource management in manufacturing, logistics, retail, IT, tourism, and mobility; implementation of efficiency, decarbonization, and circular economy strategies
- Entry-level roles, e.g., Junior Energy Manager, ESG/Sustainability Specialist, Circular Economy/Resource Analyst, Sustainability Product and Innovation Manager
- **Consulting, auditing, and engineering firms**
 - Analysis and optimization of energy and material flows, risk and resilience consulting, ESG and climate strategies, technical due diligence, and support for funding and program implementation
 - Entry-level roles, e.g., Junior Energy/Sustainability Consultant, Resilience/Circular Economy Analyst, Project Assistant for EU/Global Projects, Sustainability Reporting Analyst.
- **Public sector, energy agencies, and international organizations**
 - Planning and implementation of municipal/regional energy and resource strategies, heating and cooling networks, energy communities, infrastructure and climate adaptation projects
 - Entry-level roles, e.g., Junior Project Manager for the Energy Transition, Energy and Climate Protection Coordinator, Regional Development Analyst, Program and Grant Office Assistant
- **Finance and investment sector with a focus on energy/ESG**
 - Evaluation and management of energy and infrastructure investments, risk and impact analyses, sustainable finance, carbon and resource metrics

Entry-level roles, e.g., Junior ESG/Climate Analyst, Sustainable Investment Analyst, Risk/Impact Analyst for Energy Projects, Junior Portfolio Specialist in Renewables

1.2 Qualification profile

The qualification objectives and learning outcomes of the bachelor's degree program in [Subject] align with both academic and professional requirements and correspond to ISCED level 0788 (International Standard Classification of Education). The curriculum prepares graduates for the professional fields described in previous chapters.

Professional Field of Work	Task	Competency Description	Competency Mapping	Curriculum Modules
Energy Trading	Analyze energy markets, price formation, and market mechanisms	Ability to understand market and price drivers, empirically evaluate market data, and assess market outcomes in terms of system efficiency, climate protection, and security of supply	Technical and Scientific Competencies	Energy Markets, Risk & Trading; Business, Economics & Financing; Data Analytics; Digital Tools & Data Skills; Scientific & Empirical Methods; Renewable & Secure Energy Systems
	Developing trading and procurement strategies and managing risks	Ability to derive procurement and hedging strategies, assess risks based on data, and provide transparent justifications for decisions in volatile markets	Technical and Scientific Competencies	Energy Markets, Risk & Trading; Business, Economics & Financing; Energy & Sustainability Management; Data Analytics; Digital Tools & Data Skills; European & International Law
	Integrating Renewable Energy into International Energy Markets	Ability to develop integration strategies for variable generation, model system impacts, and take cross-border regulatory frameworks into account	Technical and Academic Competencies	Renewable & Secure Energy Systems; Smart & Secure Energy Grids; Regional & Resilient Energy Systems; Energy Technology; Ecology, Resilience & Sustainable Systems; European & International Law
Sales & Product Management for the Energy & Circular Economy	Designing energy- and circular economy-oriented products and services	Ability to identify requirements, develop solution options, and systematically evaluate sustainability impacts and economic viability	Technical and Academic Competencies	Sustainability Assessment & Resource Management; Selected Topics in Business Management; Business, Economics & Financing; Innovation Concepts and Principles; Selected Topics in Innovation & Technology; Energy & Sustainability Controlling
	Planning and Implementing Transformation Strategies in Organizations	Ability to structure transformation processes, engage stakeholders, constructively resolve conflicts, and effectively communicate implementation steps	Personal and Social Skills	Change & Responsibility Communication; Collaboration & Interpersonal Skills; Project Management; Selected Topics in Social Skills & Communication; Business Project 1; Business Project 2
	Evaluating Supply Chains and Resource Management	Competence in methodically analyzing supply chains and resource use, identifying risks and conflicting objectives, and deriving circular improvement measures	Technical and Scientific Competencies	Sustainability Assessment & Resource Management; Data Analytics; Scientific & Empirical Methods; European & International Law; Energy & Sustainability Controlling
Consulting and Management in the Fields of Energy, Resilience, and the Circular Economy	Conducting energy and material flow analyses and deriving recommendations for action	Ability to empirically record and balance energy and material flows, develop scenarios, and prioritize measures for resilient and circular systems	Technical and Scientific Competencies	Sustainability Assessment & Resource Management; Scientific & Empirical Methods; Data Analytics; Digital Tools & Data Skills; Ecology, Resilience & Sustainable Systems
	Designing circular value creation models and closing material loops	Competence in developing reuse and circular economy concepts, creating implementation roadmaps, and integrating technical innovations in an application-oriented manner	Technical and Scientific Competencies	Sustainability Assessment & Resource Management; Ecology, Resilience & Sustainable Systems; Innovation Concepts and Principles; Selected Topics in Innovation & Technology; Applied Lab 1; Applied Lab 2
	Applying Standards and Legal Frameworks	Ability to contextualize international standards and regulatory requirements and apply them in consulting, project, and implementation contexts	Technical and Scientific Competencies	European & International Law; Sustainability Assessment & Resource Management; Energy Markets, Risk & Trading; Selected Topics in Business Management
Consulting and Management for Municipal and Regional Transformation Processes	Developing regional energy and resource strategies and supporting international model projects	Ability to analyze regional contexts, formulate objectives, plan measures, and present results in a project- and transfer-oriented manner	Technical and Academic Competencies	Regional & Resilient Energy Systems; International Urban & Community Development Project; Ecology, Resilience & Sustainable Systems; Scientific & Empirical Methods; Project Management
	Designing low-emission heating and cooling systems and grid infrastructures	Ability to evaluate technical options, define system boundaries, and develop integrated concepts for heating, cooling, and infrastructure	Technical and scientific competencies	Energy Technology; Renewable & Secure Energy Systems; Smart & Secure Energy Grids; Electrical Engineering; Electrical Engineering - Practical Session

	Designing energy communities and smart infrastructures with a focus on implementation	Ability to integrate technical, economic, and social requirements, facilitate participatory processes, and communicate viable cooperation models	Personal and Social Skills	Collaboration & Interpersonal Skills; Change & Responsibility Communication; Smart & Secure Energy Grids; Regional & Resilient Energy Systems; European & International Law; International Urban & Community Development Project
Project Management for Renewable Energy and Resilient Systems	Planning, coordinating, documenting, and evaluating projects	Ability to structure projects with regard to quality, costs, and deadlines; coordinate interdisciplinary teams; document results in a transparent manner; and evaluate effectiveness	Personal and Social Skills	Project Management; Business Project 1; Business Project 2; Collaboration & Interpersonal Skills; Scientific & Empirical Methods; Data & Technology Communication
	Conducting Site Analyses and Technological Assessments	Ability to assess technical feasibility and system integration, analyze risks, and systematically derive site criteria	Technical and scientific competencies	Renewable & Secure Energy Systems; Energy Technology; Smart & Secure Energy Grids; Data Analytics; Applied Lab 1; Applied Lab 2
	Ensure economic viability, financing, and controlling	Ability to evaluate investment and operational concepts, apply financing models, and prepare controlling metrics for management and reporting	Technical and Scientific Competencies	Business, Economics & Financing; Energy & Sustainability Controlling; Sustainability Assessment & Resource Management; Selected Topics in Business Management
	Communicating Results and Facilitating Practical Application	Ability to present results in a manner tailored to the audience, support decision-making processes, and translate insights into application-oriented solutions and transfer formats	Personal and Social Competencies	Data & Technology Communication; Change & Responsibility Communication; Innovation, Business & Research Transfer; Collaboration & Interpersonal Skills; Foreign Language 1; Foreign Language 2; Bachelor's Thesis & Research Seminar; Integrated Internship

2 CURRICULUM

2.1 Curriculum data

	FT	Any Comments
First Year of Study (YYYY/MM ₊₁)	2027/28	
Standard duration of study (Number of semesters)	6	
SWS (Total for all semesters)	77	
ASWS (Total for all semesters)	79.65	
ECTS (Total for all semesters)	180	
Winter Semester Start (Date, Note: possibly calendar week)	Calendar Week 40	
Winter semester end (Date, Note: possibly calendar week)	Calendar Week 5	
Start of summer semester (Date, Note: possibly calendar week)	Calendar Week 11	
End of semester (Date, Note: possibly calendar week)	Calendar Week 28	
Winter Semester Weeks	15	
SS weeks	15	
Mandatory semester abroad (Semester)	3rd semester	
Language of Instruction (Specify)	English	
Professional Internship (Semester, duration in hours)	6th semester, 500 hours	

2.2 Curriculum matrix

The following overview of courses does not include the workload associated with supervising bachelor's theses. For each thesis supervised, 0.2 SWS is allocated; that is, with 8 accredited study places, this results in an additional ASWS workload of 1.6 ASWS. In total, this amounts to 81.25 ASWS across all 6 semesters, including supervision of bachelor's theses.

The "Fundamentals of Economics" module in the first semester is offered jointly with the bachelor's degree programs in Code & Digital Design, Drone Engineering, Energy & Sustainability Management, Facility Management & Real Estate Management (full-time), and Industrial Engineering. The total number of accredited student slots for these programs requires a total of three parallel groups. This results in a group division factor of 0.6 for each participating program. With a course load of 4 SWS for this module, this corresponds to 2.4 ASWS.

The modules "Electrical Engineering" and "Electrical Engineering – Practical Skills" are offered jointly with the Bachelor's program in Industrial Engineering. This results in a group division factor of 0.5. With 2 SWS in the "Electrical Engineering" module, this results in 1.0 ASWS. With 1.5 SWS in the "Electrical Engineering – Practical Skills" module, this results in 0.75 ASWS.

1. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
CIS	Collaboration & Interpersonal Skills	ILV		X	1	1	1	15	CIS	1
ECO	Ecology, Resilience & Sustainable Systems	ILV		X	3	1	3	45	ECO	5
ELE.1	Electrical Engineering	ILV	X	X	2	0.5	1.0	15.0	ELE	3
ELE.2	Electrical Engineering - Practical Session	UE	X	X	1.5	0.5	0.75	11.25	ELE	2
FEN	Fundamentals of Economics	ILV		X	4	0.6	2.4	36.0	FEN	6
LAB.1	Applied Lab 1	PT	X	X	1	1	1	15	LAB	2
LAN.1	Foreign Language 1	ILV		X	4	1	4	60	LAN	6
SCI.1	Scientific & Empirical Methods	ILV		X	3	1	3	45	SCI	5
Total line:					19.5		16.15	242.25		30
Course hours = Total WSH x course weeks					292.5					

2. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
COM	Change & Responsibility Communication	ILV		X	1.5	1	1.5	22.5	COM	2
DAT	Digital Tools & Data Skills	ILV	X	X	2	1	2	30	DAT	3
EMT	Energy Markets, Risk & Trading	ILV		X	3	1	3	45	EMT	5
ETC	Energy Technology	ILV	X	X	5	1	5	75	ETC	7
LAB.2	Applied Lab 2	PT	X	X	1	1	1	15	LAB	2
LAN.2	Foreign Language 2	ILV		X	4	1	4	60	LAN	6
LCA	Sustainability Assessment & Resource Management	ILV	X	X	3	1	3	45	LCA	5
Total line:					19.5		19.5	292.5		30
Course hours = Total WSH x course weeks					292.5					

3. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
SAB.1	Selected Topics in Business Management	ILV		X	0	1	0	0	SAB	10
SAB.2	Selected Topics in Social Skills & Communication	ILV		X	0	1	0	0	SAB	10
SAB.3	Selected Topics in Innovation & Technology	ILV	X	X	0	1	0	0	SAB	10
Total line:					0		0	0		30
Course hours = Total WSH x course weeks					0					

4. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
BPR	Business Project 1	PT	X	X	2	2	4	60	BPR	4
ICP	Innovation Concepts and Principles	ILV	X	X	2	1	2	30	ICP	3
MOB	Innovative Mobility Concepts	ILV	X	X	3	1	3	45	MOB	5
PRM	Project Management	ILV	X	X	2	1	2	30	PRM	4
RES	Renewable & Secure Energy Systems	ILV	X	X	7	1	7	105	RES	9
SEG	Smart & Secure Energy Grids	ILV	X	X	3	1	3	45	SEG	5
Total line:					19		21	315		30
Course hours = Total WSH x course weeks					285					

5. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
BPR.2	Business Project 2	PT	X	X	2	2	4	60	BPR	4
COM.2	Data & Technology Communication	ILV	X	X	1	1	1	15	COM	2
DAC	Data Analytics	ILV	X	X	3	1	3	45	DAC	5
ESC	Energy & Sustainability Controlling	ILV	X	X	3	1	3	45	ESC	5
IBR	Innovation, Business & Research Transfer	ILV	X	X	1.5	1	1.5	22.5	IBR	2
INW	International Urban & Community Development Project	PT	X	X	2	2	4	60	INW	2
LAW	European & International Law	ILV		X	3	1	3	45	LAW	5
RES	Regional & Resilient Energy Systems	ILV	X	X	3	1	3	45	RES	5
Total line:					18.5		22.5	337.5		30
Course hours = Total WSH x course weeks					277.5					

6. Semester

Course no.	Course title	LV-Typ	T	E	WSH	No. of groups	ASWS	ALVS	MODUL	ECTS
IBP	Integrated Internship	BPR	X	X	0	1	0	0	IBP	20
SCI.2	Bachelor's Thesis & Research Seminar	SE	X	X	0.5	1	0.5	7.5	SCI	4
SCI.3	Bachelor's Thesis	SE	X	X	0	1	0	0	SCI	6
Total line:					0.5		0.5	7.5		30
Course hours = Total WSH x course weeks					7.5					

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

Summary curriculum data

Description	WSH	ASWS	ALVS	ECTS
Total number of courses over all semesters	77	79.65	1194.75	180
Total number of courses in 1st year of study	39	35.65	534.75	60
Total number of courses in 2nd year of study	19	21	315	60
Total number of courses in 3rd year of study	19	23	345	60
Total number of technical events over all semesters	50.5			119
Percentage of technical courses over all semesters based on WSH / ECTS	65.58 %			66.11 %
Total number of specialized courses in English over all semesters	77			180
Proportion of specialized courses in English over all semesters (Calculation excluding language courses)	100 %			100 %

2.3 Modularization

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

Module number:	Ecology, Resilience & Sustainable Systems	Scope:	
ECO		5	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	1. Semester		
Level	1. Semester: Introduction		
Previous knowledge	1. Semester: none		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Ecology, Resilience & Sustainable Systems /ILV / LV-Nr: ECO / 1.Semester / ECTS: 5</u> - Kandpal, V., Jaswal, A., Santibanez Gonzalez, E. D. R., & Agarwal, N. (2024). Sustainable Energy Transition: Circular Economy and Sustainable Financing for Environmental, Social and Governance (ESG) Practices. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-52943-6 - Petrovic, S. (Ed.). (2023). World Energy Handbook. Springer International Publishing. https://doi.org/10.1007/978-3-031-31625-8 - Ramjeawon, T. (2020). Introduction to sustainability for engineers. CRC Press. https://doi.org/10.1201/9780429287855 - Ribeiro Hoffmann, A., Sandrin, P., & Doukas, Y. E. (Eds). (2024). Climate Change in Regional Perspective: European Union and Latin American Initiatives, Challenges, and Solutions (Vol. 27). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-49329-4 - Versolmann, I. (2025). The development of energy policy in the European Union: Continuity, critical junctures and change. Routledge. https://doi.org/10.4324/9781003298403		
Acquisition of skills	<u>Ecology, Resilience & Sustainable Systems /ILV / LV-Nr: ECO / 1.Semester / ECTS: 5</u> The participants: • describe key ecological principles and explain their importance for sustainable development and social transformation. • analyze ecological interactions and material cycles and assess their influence on sustainable systems and resource use. • examine planetary boundaries and sustainability indicators and derive viable strategies for sustainable transformation from them. • interpret biodiversity and ecosystem services and link them to social and economic aspects of sustainability.		
Course contents	<u>Ecology, Resilience & Sustainable Systems /ILV / LV-Nr: ECO / 1.Semester / ECTS: 5</u> - Ecological fundamentals, including ecosystem structure, energy flows, material cycles and the basic principles of ecological stability - Sustainable development, including guiding principles of global responsibility, resource conservation and socio-ecological objective systems - Biodiversity and ecosystem services and their importance for ecological functionality and sustainable social benefit - Planetary boundaries and sustainability indicators, including ecological limits and sustainable scope for action - Sustainable material and energy flows, including the ecological fundamentals of cycles and the sustainable use of resources - Resilience in ecological and sustainable systems, including robustness, adaptability and basic transformation approaches		
Teaching and learning methods	<u>Ecology, Resilience & Sustainable Systems /ILV / LV-Nr: ECO / 1.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Ecology, Resilience & Sustainable Systems /ILV / LV-Nr: ECO / 1.Semester / ECTS: 5</u> Portfolio assessment		

Module number:	Fundamentals of Economics	Scope:	
FEN		6	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	1. Semester		
Level	1. Semester: Introduction		
Previous knowledge	1. Semester: none		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Fundamentals of Economics /ILV / LV-Nr: FEN / 1.Semester / ECTS: 6</u> - Attrill, P., & McLaney, E. (2022). Accounting and finance for non-specialists (12th ed.). Pearson. - Kotler, P., & Keller, K. L. (2022). Marketing management (16th ed.). Pearson. - Solomon, J., Garratt, D., & Guest, J. (2023). Economics for business (9th ed.). Pearson		
Acquisition of skills	<u>Fundamentals of Economics /ILV / LV-Nr: FEN / 1.Semester / ECTS: 6</u> The participants: • define key terms and basic terminology of business administration, economics and accounting. • explain the basic structures and functions of companies as well as how markets work. • describe the essential principles of cost accounting, financial reporting and budgeting. • apply basic economic models such as supply and demand or market equilibrium to real-world problems. • analyze economic scenarios using management, marketing and financial models. • prepare simple financial reports and interpret balance sheets as well as income statements. • evaluate investment and financing alternatives using common financial metrics such as net present value and internal rate of return. • assess the efficiency of business processes and organizational structures. • integrate knowledge of business administration, economics and accounting in order to support well-founded decisions.		
Course contents	<u>Fundamentals of Economics /ILV / LV-Nr: FEN / 1.Semester / ECTS: 6</u> Introduction to business administration: - Definition and objectives of business administration - Legal and organizational forms of companies - Management functions: planning, organising, leading, controlling - Fundamentals of corporate governance and business ethics Marketing & sales: - Fundamentals of marketing and market segmentation - Marketing mix: product, price, place, promotion - Market research and consumer behavior Human resource management: - Workforce planning, recruitment and personnel development - Motivation and leadership theories - Performance appraisal and compensation Procurement, production, logistics: - Fundamentals of supply chain management - Procurement and sourcing strategies - Production systems and inventory management Fundamentals of economics: - Microeconomics: supply, demand and market equilibrium - Elasticities, cost and production theory - Macroeconomics: GDP, inflation, unemployment, fiscal and monetary policy - Economic systems and world trade Accounting and financial management: - Introduction to double-entry bookkeeping - Balance sheet, income statement and cash flow statement - Cost and activity accounting (cost types, cost centers, costs) - Investment appraisal (static and dynamic methods) - Financing: equity and debt financing, capital structure		
Teaching and learning methods	<u>Fundamentals of Economics /ILV / LV-Nr: FEN / 1.Semester / ECTS: 6</u> Lecture, exercise		
Evaluation Methods Criteria	<u>Fundamentals of Economics /ILV / LV-Nr: FEN / 1.Semester / ECTS: 6</u> Portfolio assessment		

Module number:	Electrical Engineering	Scope:	
ELE		5	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	1. Semester		
Level	1. Semester: Introduction / 1. Semester: Introduction & in-depth study		
Previous knowledge	1. Semester: none		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Electrical Engineering /ILV / LV-Nr: ELE.1 / 1.Semester / ECTS: 3</u> - Bieneck, H. (2005). Elektro T. Grundlagen der Elektrotechnik. Lehrbuch: Informations- und Arbeitsbuch für Schüler und Studenten der elektrotechnischen Berufe. Holland & Josenhans. - Hagmann, R. (2006). Grundlagen der Elektrotechnik (12. Aufl.). AULA-Verlag. - Orłowski, A. (2008). Praktische Regeltechnik. Anwendungsorientierte Einführung für Maschinenbauer und Elektrotechniker (7. Aufl.). Springer. - Stiller, C. (2006). Grundlagen der Mess- und Regelungstechnik. Shaker Verlag.		
	<u>Electrical Engineering - Practical Session /UE / LV-Nr: ELE.2 / 1.Semester / ECTS: 2</u> - Bieneck, H. (2005). Elektro T. Grundlagen der Elektrotechnik. Lehrbuch: Informations- und Arbeitsbuch für Schüler und Studenten der elektrotechnischen Berufe. Holland & Josenhans. - Hagmann, R. (2006). Grundlagen der Elektrotechnik (12. Aufl.). AULA-Verlag. - Orłowski, A. (2008). Praktische Regeltechnik. Anwendungsorientierte Einführung für Maschinenbauer und Elektrotechniker (7. Aufl.). Springer. - Stiller, C. (2006). Grundlagen der Mess- und Regelungstechnik. Shaker Verlag.		
Acquisition of skills	<u>Electrical Engineering /ILV / LV-Nr: ELE.1 / 1.Semester / ECTS: 3</u> The participants: • use common electrical measuring instruments such as digital multimeters or oscilloscopes correctly and safely. • interpret electrical and electronic circuit diagrams. • measure current, voltage and resistance in electrical circuits and evaluate the measurement results. • identify the fundamental laws of electrical engineering and apply them in basic circuit analyzes. • build electrical and electronic circuits according to given circuit diagrams and analyze how they work. • describe the behavior of capacitors and inductors in an AC circuit. • distinguish between electronic components and select suitable components for simple circuits. • recognise the wiring of electrical machines such as three-phase asynchronous motors and select suitable connection and operating modes.		
	<u>Electrical Engineering - Practical Session /UE / LV-Nr: ELE.2 / 1.Semester / ECTS: 2</u> The participants: • use common electrical measuring instruments such as digital multimeters and oscilloscopes correctly and safely. • interpret electrical and electronic circuit diagrams. • measure current, voltage and resistance in electrical circuits and evaluate the measurement results. • identify fundamental laws of electrical engineering and use them to analyze simple circuits. • build electrical and electronic circuits according to a circuit diagram and analyze how they work. • distinguish between electronic components and select suitable components for simple applications. • recognise the wiring of electrical machines such as three-phase asynchronous motors and select suitable connection and operating modes.		
Course contents	<u>Electrical Engineering /ILV / LV-Nr: ELE.1 / 1.Semester / ECTS: 3</u> - Introduction and basic concepts - Fundamental laws of electrical engineering - Voltage sources and current sources - Basic circuits - Electric field and capacitor - Magnetic field and inductor - Circuit design - AC and three-phase technology - Electrical installations and machines - Protective measures - Fundamentals of electronic components		

	<u>Electrical Engineering - Practical Session /UE / LV-Nr: ELE.2 / 1.Semester / ECTS: 2</u> - Measuring current, voltage and resistance - Interpreting the fundamental laws of electrical engineering - Series and parallel circuits - Capacitor and inductor in an AC circuit - Use and wiring of electrical equipment and electrical machines - Building basic logic functions using integrated circuits (IC) - Electronic components
Teaching and learning methods	<u>Electrical Engineering /ILV / LV-Nr: ELE.1 / 1.Semester / ECTS: 3</u> Lecture
	<u>Electrical Engineering - Practical Session /UE / LV-Nr: ELE.2 / 1.Semester / ECTS: 2</u> Exercise

Evaluation Methods Criteria	<u>Electrical Engineering /ILV / LV-Nr: ELE.1 / 1.Semester / ECTS: 3</u> Portfolio assessment
	<u>Electrical Engineering - Practical Session /UE / LV-Nr: ELE.2 / 1.Semester / ECTS: 2</u> Written examination

Module number:	Applied Lab	Scope:	
LAB		4	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	1. Semester		
	2. Semester		
Level	1. Semester: Introduction & in-depth study / 2. Semester: In-depth study		
Previous knowledge	1. Semester: none / 2. Semester: Applied Lab 1		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Applied Lab 1 / PT / LV-Nr: LAB.1 / 1.Semester / ECTS: 2</u> - Kara, H., Gergen, K. J., & Gergen, M. M. (2020). Creative research methods: A practical guide (Second edition). Policy Press. - Publication manual of the American Psychological Association: The official guide to APA style (Seventh edition). (2020). American Psychological Association.		
	<u>Applied Lab 2 / PT / LV-Nr: LAB.2 / 2.Semester / ECTS: 2</u> - Kara, H., Gergen, K. J., & Gergen, M. M. (2020). Creative research methods: A practical guide (Second edition). Policy Press. - Publication manual of the American Psychological Association: The official guide to APA style (Seventh edition). (2020). American Psychological Association.		
Acquisition of skills	<u>Applied Lab 1 / PT / LV-Nr: LAB.1 / 1.Semester / ECTS: 2</u> The participants: • analyze practice-oriented tasks from energy and sustainability management and break them down into actionable work steps. • apply basic methods and tools of project and team work in order to tackle simple problems in a lab or project context. • develop initial technical, economic or organizational solution approaches and implement them as prototypes or models. • document and present their work results in an audience-appropriate way, in visual as well as written or digital form. • reflect on their approach, take on board feedback constructively and derive improvements for future projects from it.		
	<u>Applied Lab 2 / PT / LV-Nr: LAB.2 / 2.Semester / ECTS: 2</u> The participants: • work independently on more complex practice-oriented tasks from energy and sustainability management and structure them taking into account professional, organizational and time-related conditions. • deepen and expand methods and tools of project and team work and apply them in a targeted manner in interdisciplinary contexts. • develop more advanced technical, economic or organizational solution approaches, evaluate them critically and implement selected approaches conceptually or as prototypes. • analyze and interpret results systematically and prepare them in an audience-appropriate way in suitable visual, written or digital formats. • reflect critically on project processes and results, integrate feedback in a structured way and derive well-founded conclusions for the further development of solution approaches and working methods.		
Course contents	<u>Applied Lab 1 / PT / LV-Nr: LAB.1 / 1.Semester / ECTS: 2</u> - Introduction & in-depth study of project- and lab-based work - Fundamentals of methodical problem solving and creativity techniques - Use of digital tools - Introduction to documentation and presentation techniques - Teamwork and communication in the project context - Implementation of small practical tasks or micro-projects - Reflection on work processes and self-organization - Feedback and review rounds to improve results		
	<u>Applied Lab 2 / PT / LV-Nr: LAB.2 / 2.Semester / ECTS: 2</u>		

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

Module number:	Foreign Language	Scope:	
LAN		12	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	1. Semester		
	2. Semester		
Level	1. Semester: A1 to C2 (CEFR) / 2. Semester: A1 to C2 (CEFR)		
Previous knowledge	1. Semester: Beginner modules: - Chinese, German, Spanish at level A1/A2 with target A2: no prior knowledge permitted Advanced beginner modules: - German at level A2/B1 with target B1.1: solid prior knowledge at A1 level Advanced modules: - Business German, Business French, Business Italian, Business Spanish at level B1/B2 with target B2.1: solid prior knowledge at level A2 - Business English for academic and professional purposes at level B2+/C1 with target C1: prior knowledge at level B2 or English bridging workshop / English preparatory course - Business English for academic and professional purposes at level C1/C2 with target C2.1: solid prior knowledge at level B2.2 / 2. Semester: Beginner modules: - Chinese, German, Spanish at level A1/A2 with target A2: no prior knowledge permitted Advanced beginner modules: - German at level A2/B1 with target B1.1: solid prior knowledge at A1 level Advanced modules: - Business German, Business French, Business Italian, Business Spanish at level B1/B2 with target B2.1: solid prior knowledge at level A2 - Business English for academic and professional purposes at level B2+/C1 with target C1: prior knowledge at level B2 or English bridging workshop / English preparatory course - Business English for academic and professional purposes at level C1/C2 with target C2.1: solid prior knowledge at level B2.2		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Foreign Language 1 /ILV / LV-Nr: LAN.1 / 1.Semester / ECTS: 6</u> Course materials – as agreed; authentic materials, e.g., from English-language magazines (including academic journals), newspapers, and online media		
	<u>Foreign Language 2 /ILV / LV-Nr: LAN.2 / 2.Semester / ECTS: 6</u> Course materials – as agreed; authentic materials, e.g., from English-language magazines (including academic journals), newspapers, and online media		
Acquisition of skills	<u>Foreign Language 1 /ILV / LV-Nr: LAN.1 / 1.Semester / ECTS: 6</u>		

	The participants: • (A1 – Beginner) Can understand and use familiar, everyday expressions and very simple sentences aimed at satisfying concrete needs. • (A1 – Beginner) Can introduce themselves and others and ask other people questions about themselves – for example, where they live, whom they know or what they own – and can answer such questions. • (A1 – Beginner) Can interact in a simple way provided the other person talks slowly and clearly and is willing to help. • (A2 – Elementary) Can understand sentences and frequently used expressions related to areas of immediate relevance (for example, personal and family information, shopping, work, the local area). • (A2 – Elementary) Can communicate in simple, routine situations that require a simple and direct exchange of information about familiar and everyday matters. • (A2 – Elementary) Can describe, using simple terms, their own background and education, their immediate environment and matters related to immediate needs. • (B1 – Intermediate) Can understand the main points when clear standard language is used and when the topics are familiar matters relating to work, school, leisure and so on. • (B1 – Intermediate) Can deal with most situations likely to arise while travelling in an area where the language is spoken, and can express themselves simply and coherently on familiar topics and areas of personal interest • (B1 – Intermediate) Can report on experiences and events, describe dreams, hopes and goals, and give brief reasons or explanations for plans and opinions • (B2 – Upper Intermediate) Can understand the main content of complex texts on both concrete and abstract topics; understands specialist discussions in their own field. Can communicate spontaneously and fluently enough for a normal conversation with native speakers to be quite possible without strain for either party. Can express themselves clearly and in detail on a wide range of topics, explain a viewpoint on a current issue and outline the advantages and disadvantages of various options • (C1 – Advanced) Can understand a wide range of demanding, longer texts and grasp implicit meanings. • (C1 – Advanced) Can express themselves spontaneously and fluently without frequently and obviously having to search for words, and can use the language effectively and flexibly for social and professional purposes or in education and study. • (C1 – Advanced) Can express themselves clearly, in a structured way and at length on complex subjects, using various cohesive devices appropriately. • (C2 – Near-native Proficiency) Can understand with ease virtually everything they read or hear • (C2 – Near-native Proficiency) Can summarise information from various written and spoken sources and reproduce
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Acquisition of skills	reasons and explanations in a coherent presentation. • (C2 – Near-native Proficiency) Can express themselves spontaneously, very fluently and precisely, and convey finer shades of meaning even in more complex situations.
	<u>Foreign Language 2 /ILV / LV-Nr: LAN.2 / 2.Semester / ECTS: 6</u> The participants: • (A1 – Beginner) Can understand and use familiar, everyday expressions and very simple sentences aimed at satisfying concrete needs. • (A1 – Beginner) Can introduce themselves and others and ask other people questions about themselves – for example, where they live, whom they know or what they own – and can answer such questions. • (A1 – Beginner) Can interact in a simple way provided the other person talks slowly and clearly and is willing to help. • (A2 – Elementary) Can understand sentences and frequently used expressions related to areas of immediate relevance (for example, personal and family information, shopping, work, the local area). • (A2 – Elementary) Can communicate in simple, routine situations that require a simple and direct exchange of information about familiar and everyday matters. • (A2 – Elementary) Can describe, using simple terms, their own background and education, their immediate environment and matters related to immediate needs. • (B1 – Intermediate) Can understand the main points when clear standard language is used and when the topics are familiar matters relating to work, school, leisure and so on. • (B1 – Intermediate) Can deal with most situations likely to arise while travelling in an area where the language is spoken, and can express themselves simply and coherently on familiar topics and areas of personal interest • (B1 – Intermediate) Can report on experiences and events, describe dreams, hopes and goals, and give brief reasons or explanations for plans and opinions • (B2 – Upper Intermediate) Can understand the main content of complex texts on both concrete and abstract topics; understands specialist discussions in their own field. Can communicate spontaneously and fluently enough for a normal conversation with native speakers to be quite possible without strain for either party. Can express themselves clearly and in detail on a wide range of topics, explain a viewpoint on a current issue and outline the advantages and disadvantages of various options • (C1 – Advanced) Can understand a wide range of demanding, longer texts and grasp implicit meanings. • (C1 – Advanced) Can express themselves spontaneously and fluently without frequently and obviously having to search for words, and can use the language effectively and flexibly for social and professional purposes or in education and study. • (C1 – Advanced) Can express themselves clearly, in a structured way and at length on complex subjects, using various cohesive devices appropriately. • (C2 – Near-native Proficiency) Can understand with ease virtually everything they read or hear • (C2 – Near-native Proficiency) Can summarise information from various written and spoken sources and reproduce reasons and explanations in a coherent presentation. • (C2 – Near-native Proficiency) Can express themselves spontaneously, very fluently and precisely, and convey finer shades of meaning even in more complex situations.
Course contents	<u>Foreign Language 1 /ILV / LV-Nr: LAN.1 / 1.Semester / ECTS: 6</u>

	A1 – Beginner Can understand and use familiar, everyday expressions and very simple sentences aimed at satisfying concrete needs. Can introduce themselves and others and ask other people questions about themselves – for example, where they live, whom they know or what they own – and can answer such questions. Can interact in a simple way provided the other person talks slowly and clearly and is willing to help. A2 – Elementary Can understand sentences and frequently used expressions related to areas of immediate relevance (for example, personal and family information, shopping, work, the local area). Can communicate in simple, routine situations that require a simple and direct exchange of information about familiar and everyday matters. Can describe, using simple terms, their own background and education, their immediate environment and matters related to immediate needs. B1 – Intermediate Can use clear standard language in academic and business contexts, communicate about familiar matters relating to work, school, leisure and so on, and apply relevant conversational skills. Can express themselves simply and coherently on familiar topics and areas of personal interest. Can report on experiences and events, describe dreams, hopes and goals, and give brief reasons or explanations for plans and opinions. B2 – Upper Intermediate Can address the main content of complex texts on both concrete and abstract topics in academic and business contexts, and can take part in specialist discussions in their own field. Can communicate spontaneously and fluently enough for a normal conversation with native speakers to be quite possible without strain for either party. Can express themselves clearly and in detail on a wide range of topics, explain a viewpoint on a current issue and outline the advantages and disadvantages of various options. C1 – Advanced Can understand a wide range of demanding, longer texts and grasp implicit meanings. Can use the language effectively and flexibly in academic and business contexts and express themselves spontaneously and fluently without frequently and obviously having to search for words. Can express themselves clearly, in a structured way and at length on complex subjects, using various cohesive devices appropriately. C2 – Near-native Proficiency Effortless communication in all language situations. Can summarise information from various written and spoken sources and reproduce reasons and explanations in a coherent presentation. Can express themselves spontaneously, very fluently and precisely and convey finer shades of meaning even in more complex situations. <u>Foreign Language 2 /ILV / LV-Nr: LAN.2 / 2.Semester / ECTS: 6</u> A1 – Beginner Can understand and use familiar, everyday expressions and very simple sentences aimed at satisfying concrete needs. Can introduce themselves and others and ask other people questions about themselves – for example, where they live, whom they know or what they own – and can answer such questions. Can interact in a simple way provided the other person talks slowly and clearly and is willing to help.
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Course contents	A2 – Elementary Can understand sentences and frequently used expressions related to areas of immediate relevance (for example, personal and family information, shopping, work, the local area). Can communicate in simple, routine situations that require a simple and direct exchange of information about familiar and everyday matters. Can describe, using simple terms, their own background and education, their immediate environment and matters related to immediate needs. B1 – Intermediate Can use clear standard language in academic and business contexts, communicate about familiar matters relating to work, school, leisure and so on, and apply relevant conversational skills. Can express themselves simply and coherently on familiar topics and areas of personal interest. Can report on experiences and events, describe dreams, hopes and goals, and give brief reasons or explanations for plans and opinions. B2 – Upper Intermediate Can address the main content of complex texts on both concrete and abstract topics in academic and business contexts, and can take part in specialist discussions in their own field. Can communicate spontaneously and fluently enough for a normal conversation with native speakers to be quite possible without strain for either party. Can express themselves clearly and in detail on a wide range of topics, explain a viewpoint on a current issue and outline the advantages and disadvantages of various options. C1 – Advanced Can understand a wide range of demanding, longer texts and grasp implicit meanings. Can use the language effectively and flexibly in academic and business contexts and express themselves spontaneously and fluently without frequently and obviously having to search for words. Can express themselves clearly, in a structured way and at length on complex subjects, using various cohesive devices appropriately. C2 – Near-native Proficiency Effortless communication in all language situations. Can summarise information from various written and spoken sources and reproduce reasons and explanations in a coherent presentation. Can express themselves spontaneously, very fluently and precisely, and convey finer shades of meaning even in more complex situations.
Teaching and learning methods	<u>Foreign Language 1 /ILV / LV-Nr: LAN.1 / 1.Semester / ECTS: 6</u> Blended learning <u>Foreign Language 2 /ILV / LV-Nr: LAN.2 / 2.Semester / ECTS: 6</u> Blended learning
Evaluation Methods Criteria	<u>Foreign Language 1 /ILV / LV-Nr: LAN.1 / 1.Semester / ECTS: 6</u> Portfolio assessment <u>Foreign Language 2 /ILV / LV-Nr: LAN.2 / 2.Semester / ECTS: 6</u> Portfolio assessment

Module number:	Scientific & Empirical Methods	Scope:	
SCI		15	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	1. Semester		
	6. Semester		
Level	1. Semester: Introduction & in-depth study / 6. Semester: In-depth study		
Previous knowledge	1. Semester: Basic knowledge of statistics and academic work from school or vocational training / 6. Semester: all content from semesters 1 to 5 / 6. Semester: Bachelor's Thesis & Research Seminar		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Scientific & Empirical Methods /ILV / LV-Nr: SCI.1 / 1.Semester / ECTS: 5</u> - Alley, M. (2018). The craft of scientific writing (Fourth edition). Springer. - American psychological association (Ed.). (2020). Publication manual of the American psychological association: The official guide to APA style (7th ed). - Gastel, B., & Day, R. (2019). How to Write and Publish a Scientific Paper (1st ed). Greenwood. https://doi.org/10.5040/9798400666926 - James, G., Witten, D., Hastie, T., & Tibshirani, R. (2021). An introduction to statistical learning: With applications in R (Second edition). Springer. - Shumway, R. H., & Stoffer, D. S. (2017). Time Series Analysis and Its Applications: With R Examples (4th ed. 2017). Springer. https://doi.org/10.1007/978-3-319-52452-8		
	<u>Bachelor's Thesis & Research Seminar /SE / LV-Nr: SCI.2 / 6.Semester / ECTS: 4</u> - American psychological association (Ed.). (2020). Publication manual of the American psychological association: The official guide to APA style (7th ed). American psychological association. - Gastel, B., & Day, R. (2019). How to Write and Publish a Scientific Paper (1st ed). Greenwood. https://doi.org/10.5040/9798400666926		
	<u>Bachelor's Thesis /SE / LV-Nr: SCI.3 / 6.Semester / ECTS: 6</u> - American psychological association (Ed.). (2020). Publication manual of the American psychological association: The official guide to APA style (7th ed). American psychological association. - Gastel, B., & Day, R. (2019). How to Write and Publish a Scientific Paper (1st ed). Greenwood. https://doi.org/10.5040/9798400666926		
Acquisition of skills	<u>Scientific & Empirical Methods /ILV / LV-Nr: SCI.1 / 1.Semester / ECTS: 5</u> The participants: • explain the principles of academic work, research logic and academic integrity. • search for, evaluate and cite academic sources in compliance with copyright and citation standards. • apply digital tools and assistance systems in a targeted and reflective way within the research process. • apply descriptive and exploratory statistics. • interpret and visualise empirical results in tables, charts or short reports. • reflect on the importance of scientific methodology for well-founded decisions in energy and sustainability management within the context of scientific responsibility.		
	<u>Bachelor's Thesis & Research Seminar /SE / LV-Nr: SCI.2 / 6.Semester / ECTS: 4</u> The participants: • formulate and structure a scientifically sound research question. • research, analyze and evaluate relevant academic and practice-oriented sources. • select and justify suitable research methods and apply them to a defined problem. • interpret and discuss results with regard to scientific findings and implications for professional practice. • communicate and defend their own research results in written and oral form in a professional and audience-appropriate manner. • reflect on their own academic work as well as ethical and methodological aspects of the research process.		
	<u>Bachelor's Thesis /SE / LV-Nr: SCI.3 / 6.Semester / ECTS: 6</u>		

	The participants: • work independently on a clearly defined research question from the energy and sustainability field, applying academic methods. • plan, structure and carry out an academic project on their own responsibility, complying with professional, time-related and formal requirements. • correctly apply suitable qualitative, quantitative or conceptual research methods and document their use in a comprehensible way. • analyze, interpret and critically discuss the results obtained in the context of current academic discourse and the requirements of professional practice. • write a coherent academic paper that meets the formal, linguistic and substantive standards of the study program. • reflect critically and with justification on their own research process as well as methodological, ethical and content-related decisions.
Course contents	<u>Scientific & Empirical Methods /ILV / LV-Nr: SCI.1 / 1.Semester / ECTS: 5</u> - Fundamentals of academic work and principles of good academic practice - Copyright, citation rules and plagiarism avoidance - Structure of academic texts and the research process - Introduction to empirical methods: qualitative and quantitative approaches - Descriptive statistics and simple data analyzes - Use of digital tools and assistance systems

Course contents	- Data visualisation and documentation of results
	<u>Bachelor's Thesis & Research Seminar /SE / LV-Nr: SCI.2 / 6.Semester / ECTS: 4</u> - Accompanying research seminar with peer feedback and presentations - Discussion of research design, choice of methods and interpretation of results - Reflection on practical relevance, transfer and limitations of the work - Preparation of the final presentation & final examination
	<u>Bachelor's Thesis /SE / LV-Nr: SCI.3 / 6.Semester / ECTS: 6</u> Within this module, students independently write their bachelor's thesis. They work on a clearly defined research question on their own responsibility, applying suitable academic methods, systematically evaluate the findings obtained and document the results in the form of an academic paper in accordance with the formal and substantive standards of the study program.
Teaching and learning methods	<u>Scientific & Empirical Methods /ILV / LV-Nr: SCI.1 / 1.Semester / ECTS: 5</u> Lectures, discussions, case studies, group work
	<u>Bachelor's Thesis & Research Seminar /SE / LV-Nr: SCI.2 / 6.Semester / ECTS: 4</u> Lectures, discussion
	<u>Bachelor's Thesis /SE / LV-Nr: SCI.3 / 6.Semester / ECTS: 6</u> Independent academic work by the students.
Evaluation Methods Criteria	<u>Scientific & Empirical Methods /ILV / LV-Nr: SCI.1 / 1.Semester / ECTS: 5</u> Portfolio assessment
	<u>Bachelor's Thesis & Research Seminar /SE / LV-Nr: SCI.2 / 6.Semester / ECTS: 4</u> Participation
	<u>Bachelor's Thesis /SE / LV-Nr: SCI.3 / 6.Semester / ECTS: 6</u> Bachelor's thesis

Module number:	Digital Tools & Data Skills	Scope:	
DAT		3	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	2. Semester		
Level	2. Semester: Introduction & in-depth study		
Previous knowledge	2. Semester: Scientific & Empirical Methods		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Digital Tools & Data Skills /ILV / LV-Nr: DAT / 2.Semester / ECTS: 3</u> - Amos, D., Bader, D., Jablonski, J., & Heisler, F. (2021). Python basics: A practical introduction to Python 3 (Revised and updated 4th edition). Real Python. - Matthes, E. (2023). Python crash course: A hands-on, project-based introduction to programming (3rd edition). No Starch Press. - Runkler, T. A. (2025a). Data Analytics: Models and Algorithms for Intelligent Data Analysis - A Comprehensive Introduction (4th ed. 2025). Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-45951-2 - Runkler, T. A. (2025b). Data Analytics: Models and Algorithms for Intelligent Data Analysis - A Comprehensive Introduction (4th ed. 2025). Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-45951-2		
Acquisition of skills	<u>Digital Tools & Data Skills /ILV / LV-Nr: DAT / 2.Semester / ECTS: 3</u> The participants: • explain basic digital concepts, data structures and interfaces in energy and sustainability management.. • use common software tools for structured data collection and management. • apply simple scripts to analyze, filter and graphically display data. • analyze data sets for patterns, relationships and sources of error. • reflect on the benefits, limits and ethical aspects of digital data processing in energy and sustainability management.		
Course contents	<u>Digital Tools & Data Skills /ILV / LV-Nr: DAT / 2.Semester / ECTS: 3</u> - Introduction to digital tools and data management - Introduction to programming and databases - Data quality, error detection and cleansing - Cloud and collaboration tools for data projects - Data protection, data security and ethical aspects of data processing		
Teaching and learning methods	<u>Digital Tools & Data Skills /ILV / LV-Nr: DAT / 2.Semester / ECTS: 3</u> Lectures, discussions, case studies, group work		
Evaluation Methods Criteria	<u>Digital Tools & Data Skills /ILV / LV-Nr: DAT / 2.Semester / ECTS: 3</u> Portfolio assessment		

Module number:	Energy Markets, Risk & Trading	Scope:	
EMT		5	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	2. Semester		
Level	2. Semester: Introduction & in-depth study		
Previous knowledge	2. Semester: none		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Energy Markets, Risk & Trading /ILV / LV-Nr: EMT / 2.Semester / ECTS: 5</u> - Bhattacharyya, S. C. (2019). Energy economics: Concepts, issues, markets and governance (2nd ed). Springer. - Hafner, M., & Luciani, G. (Eds). (2022). The Palgrave Handbook of International Energy Economics. Springer International Publishing. https://doi.org/10.1007/978-3-030-86884-0 - Kandpal, V., Jaswal, A., Santibanez Gonzalez, E. D. R., & Agarwal, N. (2024). Sustainable Energy Transition: Circular Economy and Sustainable Financing for Environmental, Social and Governance (ESG) Practices. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-52943-6 - Müsgens, F., & Bade, A. (2024). Energy Trading and Risk Management. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-57238-8 - Thewissen, J., Arslan-Ayaydin, Ö., Westerman, W., & Dorsman, A. (Eds). (2024). The ESG Framework and the Energy Industry: Demand and Supply, Market Policies and Value Creation. Springer International Publishing. https://doi.org/10.1007/978-3-031-48457-5		
Acquisition of skills	<u>Energy Markets, Risk & Trading /ILV / LV-Nr: EMT / 2.Semester / ECTS: 5</u> The participants: • describe the structure of national and international energy markets and explain basic market mechanisms. • analyze energy price formation, supply-and-demand dynamics and relevant market parameters. • assess risks in energy trading on the basis of fundamental risk types, market indicators and influencing factors. • carry out simple trading strategies and interpret the results with regard to market development and risk behavior. • use basic energy trading instruments such as spot, futures and forward contracts and derive fundamental options for action for trading decisions.		
Course contents	<u>Energy Markets, Risk & Trading /ILV / LV-Nr: EMT / 2.Semester / ECTS: 5</u> - Overview of energy markets, including market structures, players, price formation mechanisms and relevant energy sources - Fundamentals of energy trading, including spot markets, futures markets, OTC trading and basic trading instruments - Price formation and market dynamics, including influencing factors such as supply, demand, regulation and geopolitical conditions - Risk management in energy trading, including basic risks such as price risks, volume risks and simple risk metrics - Trading strategies, including basic decision models and practical application within a business simulation - Carrying out simple trading decisions, interpreting market developments and assessing one's own risk behavior		
Teaching and learning methods	<u>Energy Markets, Risk & Trading /ILV / LV-Nr: EMT / 2.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Energy Markets, Risk & Trading /ILV / LV-Nr: EMT / 2.Semester / ECTS: 5</u> Portfolio assessment		

Module number:	Energy Technology	Scope:	
ETC		7	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	2. Semester		
Level	2. Semester: Introduction & in-depth study		
Previous knowledge	2. Semester: Fundamentals of electrical engineering		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Energy Technology /ILV / LV-Nr: ETC / 2.Semester / ECTS: 7</u> - Borgnakke, C., & Sonntag, R. E. (2022). Fundamentals of thermodynamics (Tenth edition, International adaptation). Wiley. - Dunlap, R. A. (2025). Renewable Energy: Requirements and Sources (1st ed. 2025). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-77185-9 - Gupta, S. K. (2025). Fundamentals of renewable Energy and Green Technologies. ASTRAL INTERNATIONAL PVT. - Petrović, S. (2021). Electrochemistry Crash Course for Engineers (1st ed. 2021). Springer International Publishing. https://doi.org/10.1007/978-3-030-61562-8 Schmidt, A. (2025). Technical Thermodynamics for Engineers: Basics and Applications (3rd ed. 2025). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-58847-1		
Acquisition of skills	<u>Energy Technology /ILV / LV-Nr: ETC / 2.Semester / ECTS: 7</u> The participants: • explain the basic principles of thermodynamics, mechanics and chemistry and relate them to energy engineering applications. • analyze simple thermal, mechanical and chemical processes and assess their relevance for energy conversion and use. • calculate basic energy parameters such as efficiencies, energy flows and material conversions in typical fundamental processes of energy technology. • distinguish key materials, fluids and reaction processes in energy technology and select suitable basic models for simple use cases. • apply basic technical principles to simple energy engineering systems and interpret how they work in the context of sustainable energy systems.		
Course contents	<u>Energy Technology /ILV / LV-Nr: ETC / 2.Semester / ECTS: 7</u> - Fundamentals of thermodynamics, including forms of energy, state variables, thermodynamic cycles and basic heat transfer mechanisms - Mechanical fundamentals, including force equilibria, fluid mechanics, basic concepts and simple mechanical systems in energy technology - Fundamentals of chemistry, including reaction principles, material properties, combustion and chemical conversion processes for energy engineering applications - Materials and fluids in energy technology, including properties, metals, polymers, gases and liquids in technical energy systems - Energy conversion processes, including simple thermal, mechanical and chemical conversions as well as basic efficiency parameters - Analysis of simple energy engineering systems, including the evaluation of basic energy flows and modes of operation - Placing the fundamentals within sustainable energy technologies, linking physico-chemical fundamentals with sustainable applications		
Teaching and learning methods	<u>Energy Technology /ILV / LV-Nr: ETC / 2.Semester / ECTS: 7</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Energy Technology /ILV / LV-Nr: ETC / 2.Semester / ECTS: 7</u> Portfolio assessment		

Module number:	Sustainability Assessment & Resource Management	Scope:	
LCA		5	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	2. Semester		
Level	2. Semester: Introduction & in-depth study		
Previous knowledge	2. Semester: none		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Sustainability Assessment & Resource Management /ILV / LV-Nr: LCA / 2.Semester / ECTS: 5</u> - Çaliyurt, K. T. (Ed.). (2022). New Approaches to CSR, Sustainability and Accountability, Volume III. Springer Nature Singapore. https://doi.org/10.1007/978-981-16-9364-9 - Dathe, T., Dathe, R., Dathe, I., & Helmold, M. (2022). Corporate Social Responsibility (CSR), Sustainability and Environmental Social Governance (ESG): Approaches to Ethical Management. Springer International Publishing. https://doi.org/10.1007/978-3-030-92357-0 - Kandpal, V., Jaswal, A., Santibanez Gonzalez, E. D. R., & Agarwal, N. (2024). Sustainable Energy Transition: Circular Economy and Sustainable Financing for Environmental, Social and Governance (ESG) Practices. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-52943-6 - Klos, Z. S., Kalkowska, J., & Kasprzak, J. (Eds.). (2022). Towards a Sustainable Future - Life Cycle Management: Challenges and Prospects. Springer International Publishing. https://doi.org/10.1007/978-3-030-77127-0 - Sonnemann, G., & Margni, M. (Eds.). (2015). Life Cycle Management. Springer Netherlands. https://doi.org/10.1007/978-94-017-7221-1 - Touriki, F. E., Belhadi, A., Kamble, S., & Benkhati, I. (2022). Sustainable Excellence in Small and Medium Sized Enterprises: Continuous Improvement Approaches that Matter. Springer Singapore. https://doi.org/10.1007/978-981-19-0371-7 - Zipse, O., Hornegger, J., Becker, T., Beckmann, M., Bengsch, M., Feige, I., & Schober, M. (Eds.). (2023). Road to Net Zero: Strategic Pathways for Sustainability-Driven Business Transformation. Springer International Publishing. https://doi.org/10.1007/978-3-031-42224-9		
Acquisition of skills	<u>Sustainability Assessment & Resource Management /ILV / LV-Nr: LCA / 2.Semester / ECTS: 5</u> The participants: • describe key concepts of sustainability assessment and explain basic sustainability indicators. • analyze ecological, social and economic assessment criteria and apply basic sustainability methods to simple case examples. • create basic life cycle assessments or eco-balances and interpret their results. • examine material and resource flows and evaluate resource use against defined sustainability benchmarks. • use common sustainability assessment tools such as the ecological footprint, multi-criteria assessment or basic ESG evaluations and derive recommendations for sustainable resource management from them.		
Course contents	<u>Sustainability Assessment & Resource Management /ILV / LV-Nr: LCA / 2.Semester / ECTS: 5</u> - Sustainability assessment, including basic concepts, indicators and evaluation logics - Ecological, social and economic assessment methods, with analysis of the fundamental sustainability dimensions - Life cycle assessment and eco-balancing, including the creation of simple life cycle analyzes and the evaluation of selected scenarios - Material and resource management, including basic material and energy flows and sustainable resource criteria - Resource strategies in energy and sustainability management, including approaches for resource-efficient consumption and sustainable prioritisation - Sustainability assessment tools such as the ecological footprint, multi-criteria assessment and basic ESG evaluations		
Teaching and learning methods	<u>Sustainability Assessment & Resource Management /ILV / LV-Nr: LCA / 2.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Sustainability Assessment & Resource Management /ILV / LV-Nr: LCA / 2.Semester / ECTS: 5</u> Portfolio assessment		

Module number:	Communication	Scope:	
COM		4	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	2. Semester		
	5. Semester		
Level	2. Semester: Introduction & in-depth study / 5. Semester: In-depth study		
Previous knowledge	2. Semester: none / 5. Semester: Fundamentals of communication & presentation		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Change & Responsibility Communication /ILV / LV-Nr: COM / 2.Semester / ECTS: 2</u> - Coombs, W. T., & Holladay, S. J. (2012). Managing corporate social responsibility: A communication approach. Wiley-Blackwell. - O'Connor, A. (Ed.). (2023). The Routledge handbook of corporate social responsibility communication. Routledge, Taylor & Francis Group. https://doi.org/10.4324/9781003184911 - O'Rourke, J. S., & Smith, J. A. (2023). Strategic crisis communication. Routledge. https://doi.org/10.4324/9781003322849		
	<u>Data & Technology Communication /ILV / LV-Nr: COM.2 / 5.Semester / ECTS: 2</u> - Plo-Alastrué, R., & Corona, I. (Eds). (2023). Digital Scientific Communication: Identity and Visibility in Research Dissemination. Springer International Publishing. https://doi.org/10.1007/978-3-031-38207-9 - Roughley, M. (Ed.). (2023). Approaches for Science Illustration and Communication (Vol. 4). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-41652-1 - Suh, C. (2023). Communication Principles for Data Science. Springer Nature Singapore. https://doi.org/10.1007/978-981-19-8008-4		
Acquisition of skills	<u>Change & Responsibility Communication /ILV / LV-Nr: COM / 2.Semester / ECTS: 2</u> The participants: • explain key concepts of change communication and describe their importance for sustainable transformation processes. • analyze forms of communication and stakeholder groups in change and sustainability contexts and assess their influence on acceptance and impact. • develop basic communication strategies for change situations in energy and sustainability management. • apply methods of responsible communication to case examples and derive suitable measures to promote responsibility, transparency and credibility. • design audience-appropriate messages for change processes and argue for communicative decisions while taking ethical responsibility into account.		
	<u>Data & Technology Communication /ILV / LV-Nr: COM.2 / 5.Semester / ECTS: 2</u> The participants: • describe the basic principles of data-based communication and explain how technical and numerical content is conveyed precisely and on a factual basis. • create data-driven infographics and short audio formats that reproduce information correctly, comprehensibly and without interpretation errors. • evaluate communicated data contributions with regard to accuracy, presentation quality, freedom from distortion and factual meaningfulness. • develop short, data-based communication concepts for technical or energy-related questions and argue how this information is conveyed in an understandable and reliable way.		
Course contents	<u>Change & Responsibility Communication /ILV / LV-Nr: COM / 2.Semester / ECTS: 2</u> - Fundamentals of change communication, including key concepts, phases and roles in change processes - Responsibility communication, including the importance of transparency, credibility and social responsibility in the sustainability context - Stakeholder communication, including the analysis of target groups, communication channels and impact elements - Communication strategies in the change process, including planning, implementing and adapting basic strategies - Storytelling and narratives for sustainable transformation, including the targeted design of audience-appropriate messages - Ethical aspects of communication, including responsibility, fairness and the impact of sustainable messages - Case studies from energy and sustainability management, including practical communication tasks and scenarios		

	<u>Data & Technology Communication /ILV / LV-Nr: COM.2 / 5.Semester / ECTS: 2</u> - Fundamentals of fact-oriented and data-driven communication - Analysis and review of data quality for communication purposes - Creation of precise data-based infographics and visualisations - Turning technical and numerical content into short audio formats such as data-based podcasts - Use of digital tools for the structured presentation of facts and key figures - Evaluation of data visualisations and technical communication contributions for meaningfulness and accuracy
Teaching and learning methods	<u>Change & Responsibility Communication /ILV / LV-Nr: COM / 2.Semester / ECTS: 2</u> Lectures, discussions, exercises, case studies, group work
	<u>Data & Technology Communication /ILV / LV-Nr: COM.2 / 5.Semester / ECTS: 2</u> Lectures, discussions, exercises, case studies, group work

Evaluation Methods Criteria	<u>Change & Responsibility Communication /ILV / LV-Nr: COM / 2.Semester / ECTS: 2</u> Portfolio assessment
	<u>Data & Technology Communication /ILV / LV-Nr: COM.2 / 5.Semester / ECTS: 2</u> Portfolio assessment

Module number:	Study Abroad	Scope:	
SAB		30	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	3. Semester		
Level	3. Semester: In-depth study		
Previous knowledge	3. Semester: Business, Economics & Financing, Global Real Estate Investment & Capital Markets / 3. Semester: Collaboration & Interpersonal Skills / 3. Semester: Digital Tools & Data Skills		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Selected Topics in Business Management /ILV / LV-Nr: SAB.1 / 3.Semester / ECTS: 10</u> Will be specified by the respective partner university.		
	<u>Selected Topics in Social Skills & Communication /ILV / LV-Nr: SAB.2 / 3.Semester / ECTS: 10</u> Will be specified by the respective partner university.		
	<u>Selected Topics in Innovation & Technology /ILV / LV-Nr: SAB.3 / 3.Semester / ECTS: 10</u> Will be specified by the respective partner university.		
Acquisition of skills	<u>Selected Topics in Business Management /ILV / LV-Nr: SAB.1 / 3.Semester / ECTS: 10</u> The participants: • analyze the economic, political and social conditions of global markets. • compare international economic systems with regard to structure, dynamics and governance. • evaluate transformation processes from an economic and social perspective. • transfer theoretical concepts and models to specific case studies in international contexts. • reflect on intercultural learning and work experiences and develop from them the practical skills needed for global professional fields.		
	<u>Selected Topics in Social Skills & Communication /ILV / LV-Nr: SAB.2 / 3.Semester / ECTS: 10</u> The participants: • analyze culturally shaped communication, leadership and decision-making styles in international organizations. • apply models of intercultural competence to real-world situations. • shape and steer team processes in diverse, international environments in a goal-oriented and empathetic manner. • reflect on their personal leadership behavior, understanding of values and self-perception of their role in an intercultural context. • develop strategies for leadership, motivation and conflict resolution in globally networked organizations. • integrate ethical, sustainable and intercultural perspectives into their future professional practice. • analyze culture-specific differences in work, organizational and time structures and develop strategies for a stable work-life balance based on them. • assess international gender norms, equality frameworks and diversity practices across different cultural and legal systems and, building on this, design gender-inclusive forms of communication and interaction in an intercultural environment.		
	<u>Selected Topics in Innovation & Technology /ILV / LV-Nr: SAB.3 / 3.Semester / ECTS: 10</u> The participants: • explain the concepts and technologies of smart systems. • analyze the impact of technological innovations. • evaluate international innovation and transformation strategies with regard to efficiency, sustainability and user orientation. • develop simple concepts or scenarios for the use of smart technologies. • reflect on the opportunities, risks and ethical aspects of digital innovations in global contexts.		
Course contents	<u>Selected Topics in Business Management /ILV / LV-Nr: SAB.1 / 3.Semester / ECTS: 10</u>		

	This module is completed as part of the semester abroad at a partner institution. It serves to broaden professional, methodological, social and intercultural skills in an international academic environment. The thematic focus is on global markets, economic and social transformation processes and their significance for energy & sustainability management. The content is formulated as examples and can be covered by courses at the partner institution: - Global economic and financial systems (world markets, trade, capital flows) - International institutions and regulatory frameworks - Global transformation processes - Innovation, entrepreneurship and technology transfer in an international context - Intercultural management and communication - International case studies and project work on economic & transformation topics
	<u>Selected Topics in Social Skills & Communication /ILV / LV-Nr: SAB.2 / 3.Semester / ECTS: 10</u> This module is completed as part of the semester abroad at a partner institution. It serves to specifically foster leadership skills, intercultural understanding and global competence. The students develop the ability to lead international teams, to make productive use of diversity and to critically reflect on their own leadership behavior, as well as to further develop their own work-life balance strategies. The content is formulated as examples and can be covered by courses at the partner institution: - In-depth study of international and intercultural leadership - Cultural dimensions and models

Course contents	- Communication, trust and conflict management in international teams - Leadership styles & global ethics - Gender, diversity & inclusion in global contexts - Personal leadership development and self-reflection - International team development and virtual leadership - Case studies of global organizations, NGOs and real estate companies
	<u>Selected Topics in Innovation & Technology /ILV / LV-Nr: SAB.3 / 3.Semester / ECTS: 10</u> This module is completed as part of the semester abroad at a partner institution. It provides theoretical and practical fundamentals on digital, technological and organizational innovations in global contexts. The participants learn to understand and evaluate innovation processes and smart systems and to critically apply them to their use. The content is formulated as examples and can be covered by courses at the partner institution: - In-depth study of smart systems - Digitalisation - Innovation management, design thinking and agile methods - International best practices - Cybersecurity, data protection and ethical questions - Interdisciplinary case studies on smart systems and technology transfer
Teaching and learning methods	<u>Selected Topics in Business Management /ILV / LV-Nr: SAB.1 / 3.Semester / ECTS: 10</u> Determined by the partner institution.
	<u>Selected Topics in Social Skills & Communication /ILV / LV-Nr: SAB.2 / 3.Semester / ECTS: 10</u> Determined by the partner university.
	<u>Selected Topics in Innovation & Technology /ILV / LV-Nr: SAB.3 / 3.Semester / ECTS: 10</u> Determined by the partner university.
Evaluation Methods Criteria	<u>Selected Topics in Business Management /ILV / LV-Nr: SAB.1 / 3.Semester / ECTS: 10</u> Determined by the respective partner institution
	<u>Selected Topics in Social Skills & Communication /ILV / LV-Nr: SAB.2 / 3.Semester / ECTS: 10</u> Determined by the respective partner institution
	<u>Selected Topics in Innovation & Technology /ILV / LV-Nr: SAB.3 / 3.Semester / ECTS: 10</u> Determined by the respective partner institution

Module number:	Innovation Concepts and Principles	Scope:	
ICP		3	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	4. Semester		
Level	4. Semester: Introduction & in-depth study		
Previous knowledge	4. Semester: none		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Innovation Concepts and Principles /ILV / LV-Nr: ICP / 4.Semester / ECTS: 3</u> - Dodgson, M., Gann, D., & Phillips, N. (2014). The Oxford handbook of innovation management. Oxford university press. - Trott, P. (2021). Innovation management and new product development (Seventh Edition). Pearson.		
Acquisition of skills	<u>Innovation Concepts and Principles /ILV / LV-Nr: ICP / 4.Semester / ECTS: 3</u> The participants: • describe basic forms of technical innovation and explain their importance for energy and sustainability. • explain simple technical influencing factors such as efficiencies, material properties and system boundaries in the context of technological innovation. • recognise typical technical and organizational prerequisites for the development and introduction of new technologies. • identify fundamental challenges and barriers in the further technical development and application of innovative solutions. • classify new technologies on the basis of elementary technical criteria such as operating principle, field of application and maturity level.		
Course contents	<u>Innovation Concepts and Principles /ILV / LV-Nr: ICP / 4.Semester / ECTS: 3</u> - Basic concepts of technological innovation in energy and sustainability - Simple technical operating principles of selected energy technologies - Technological influencing factors such as efficiency, material properties and energy efficiency - Fundamentals of technology development cycles and maturity levels - Basic requirements for technical systems and organizational conditions - Technical and organizational barriers to the development and introduction of new technologies - Classifying technologies on the basis of simple technical criteria and characteristic values		
Teaching and learning methods	<u>Innovation Concepts and Principles /ILV / LV-Nr: ICP / 4.Semester / ECTS: 3</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Innovation Concepts and Principles /ILV / LV-Nr: ICP / 4.Semester / ECTS: 3</u> Portfolio assessment		

Module number:	Innovative Mobility Concepts	Scope:	
MOB		5	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	4. Semester		
Level	4. Semester: Introduction & in-depth study		
Previous knowledge	4. Semester: Fundamentals of electrical engineering and energy technologies		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Innovative Mobility Concepts /ILV / LV-Nr: MOB / 4.Semester / ECTS: 5</u> - Janasz, T. (2018). Paradigm Shift in Urban Mobility: Towards Factor 10 of Automobility. Springer Gabler. https://doi.org/10.1007/978-3-658-20460-0 - Schwbe, P. (2021). Comparison of Alternative Mobility Concepts. LAP LAMBERT ACADEMIC PUBL. Shaheen, S. (2018). Shared Mobility: The Potential of Ridehailing and Pooling. In D. Sperling (Ed.), Three Revolutions (pp. 55–76). Island Press/Center for Resource Economics. https://doi.org/10.5822/978-1-61091-906-7_3 - United Nations Economic Commission for Europe. (2020). A Handbook on Sustainable Urban Mobility and Spatial Planning: Promoting Active Mobility. United Nations. https://doi.org/10.18356/8d742f54-en		
Acquisition of skills	<u>Innovative Mobility Concepts /ILV / LV-Nr: MOB / 4.Semester / ECTS: 5</u> The participants: • describe the technical fundamentals of modern mobility systems and explain their operating principles for sustainable passenger and freight transport. • analyze the technologies of innovative forms of mobility such as electromobility, hydrogen mobility and digital mobility systems and assess their conditions of use. • examine the efficiencies, energy requirements and technical characteristics of various drive technologies and interpret their relevance for sustainable mobility strategies. • evaluate technical infrastructure components such as charging and refuelling systems as well as digital mobility platforms with regard to performance and feasibility. • develop simple technical solution concepts for innovative mobility applications and argue for their use in urban and regional contexts.		
Course contents	<u>Innovative Mobility Concepts /ILV / LV-Nr: MOB / 4.Semester / ECTS: 5</u> - Fundamentals of innovative mobility, including technological trends in electric drives, alternative fuels and digital mobility concepts - Electromobility, including battery technologies, charging infrastructure, efficiencies and technical fields of application - Hydrogen mobility, including fuel cell technology, refuelling systems, storage requirements and technical performance - Sustainable mobility systems, including multimodality, transport networks, digital services and technological interfaces - Technical infrastructure for mobility, including requirements for charging points, electrical installations, energy management and grid load - Mobility innovations and future technical concepts, including autonomous systems, connected mobility services and new drive technologies - Energy demand and efficiencies of drive systems, including basic calculation of energy flows and efficiency parameters		
Teaching and learning methods	<u>Innovative Mobility Concepts /ILV / LV-Nr: MOB / 4.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work, field trips		
Evaluation Methods Criteria	<u>Innovative Mobility Concepts /ILV / LV-Nr: MOB / 4.Semester / ECTS: 5</u> Portfolio assessment		

Module number:	Project Management	Scope:	
PRM		4	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	4. Semester		
Level	4. Semester: Introduction & in-depth study		
Previous knowledge	4. Semester: none		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Project Management /ILV / LV-Nr: PRM / 4.Semester / ECTS: 4</u> - Kuster, J., Bachmann, C., Hubmann, M., Lippmann, R., & Schneider, P. (2023). Project management handbook: Agile - traditional - hybrid (Second edition). Springer. - Lock, D. (2018). Project management (Seventh edition). Routledge, Taylor & Francis Group.		
Acquisition of skills	<u>Project Management /ILV / LV-Nr: PRM / 4.Semester / ECTS: 4</u> The participants: • explain the fundamentals of project management and describe the roles, processes and phases of technical projects in the energy & sustainability context. • plan technical sub-projects using internationally recognised project management methods • analyze project risks, quality, cost and schedule deviations and develop suitable control measures.		
Course contents	<u>Project Management /ILV / LV-Nr: PRM / 4.Semester / ECTS: 4</u> - Fundamentals and process models of technical project management - Project structuring, scheduling and resource planning - Roles, responsibilities and communication within the project team - Risk management, quality assurance, change control - Digital tools - Interdisciplinary and international project coordination - Documentation and reporting of technical projects		
Teaching and learning methods	<u>Project Management /ILV / LV-Nr: PRM / 4.Semester / ECTS: 4</u> Lectures, discussions, case studies, projects, group work		
Evaluation Methods Criteria	<u>Project Management /ILV / LV-Nr: PRM / 4.Semester / ECTS: 4</u> Portfolio assessment		

Module number:	Renewable & Secure Energy Systems	Scope:	
RES		9	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	4. Semester		
Level	4. Semester: Introduction & in-depth study		
Previous knowledge	4. Semester: Fundamentals of electrical engineering		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Renewable & Secure Energy Systems /ILV / LV-Nr: RES / 4.Semester / ECTS: 9</u> - Blume, S. W. (2017). Electric power system basics for the nonelectrical professional (Second edition). IEEE Press, Wiley. - Hossain, E., & Petrovic, S. (2021). Renewable energy crash course: A concise introduction. Springer. - Jenkins, N., & Ekanayake, J. (2024). Renewable energy engineering (Second edition). Cambridge University Press. - Nelson, V., & Starcher, K. (2016). Introduction to renewable energy (Second edition). CRC Press, Taylor & Francis Group. - Zhao, X., & Ma, X. (Eds.). (2019). Advanced energy efficiency technologies for solar heating, cooling and power generation. Springer.		
Acquisition of skills	<u>Renewable & Secure Energy Systems /ILV / LV-Nr: RES / 4.Semester / ECTS: 9</u> The participants: • analyze renewable energy conversion systems for electricity, heating and cooling and assess their technical, ecological and economic performance. • examine modern storage technologies and develop concepts for integrating storage solutions into sustainable energy systems. • evaluate the system efficiency and reliability of hybrid energy installations and derive optimisation approaches for operation and load management. • compare different renewable technologies with regard to efficiency, operating characteristics and transformation potential and argue for their use in various fields of application. • design comprehensive technical concepts for sustainable energy supply systems and develop strategic solutions for their implementation in companies or municipalities.		
Course contents	<u>Renewable & Secure Energy Systems /ILV / LV-Nr: RES / 4.Semester / ECTS: 9</u> - Renewable electricity technologies - Renewable heating and cooling technologies - Energy storage technologies - System integration of renewable energies, including load management, hybridisation and the design of sustainable energy supply systems - Techno-economic assessment, including efficiency analyzes, lifetime models, investment parameters and transformation potential - Applications in energy and sustainability management, including case studies on corporate energy supply and municipal transformation		
Teaching and learning methods	<u>Renewable & Secure Energy Systems /ILV / LV-Nr: RES / 4.Semester / ECTS: 9</u> Lectures, discussions, exercises, case studies, group work, field trips		
Evaluation Methods Criteria	<u>Renewable & Secure Energy Systems /ILV / LV-Nr: RES / 4.Semester / ECTS: 9</u> Portfolio assessment		

Module number:	Smart & Secure Energy Grids	Scope:	
SEG		5	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	4. Semester		
Level	4. Semester: In-depth study		
Previous knowledge	4. Semester: Fundamentals of electrical engineering and energy technology		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Smart & Secure Energy Grids /ILV / LV-Nr: SEG / 4.Semester / ECTS: 5</u> - Das, L. M. (2024). Hydrogen energy: Production, safety, storage and applications. Wiley. - Labriet, M., Espegren, K., Giannakidis, G., & Ó Gallachóir, B. (Eds.). (2024). Aligning the Energy Transition with the Sustainable Development Goals: Key Insights from Energy System Modeling (Vol. 101). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-58897-6 - Lovell, H. (2022). Understanding Energy Innovation: Learning from Smart Grid Experiments. Springer Singapore. https://doi.org/10.1007/978-981-16-6253-9 - Momoh, J. A. (2012). Smart grid: Fundamentals of design and analysis. Wiley. - Quitzow, R., & Zabanova, Y. (Eds.). (2024). The Geopolitics of Hydrogen: Volume 1: European Strategies in Global Perspective. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-59515-8 - Weijnen, M. P. C., Lukszo, Z., & Farahani, S. (Eds.). (2021). Shaping an Inclusive Energy Transition. Springer International Publishing. https://doi.org/10.1007/978-3-030-74586-8 - Zhou, K., & Wen, L. (2022). Smart Energy Management: Data Driven Methods for Energy Service Innovation. Springer Singapore. https://doi.org/10.1007/978-981-16-9360-1		
Acquisition of skills	<u>Smart & Secure Energy Grids /ILV / LV-Nr: SEG / 4.Semester / ECTS: 5</u> The participants: • describe the technical, economic and legal fundamentals of electricity, heating and cooling networks and explain their importance for secure energy supply systems. • analyze transmission and distribution networks for electricity, heating and cooling and assess basic operating states as well as grid requirements. • examine grid planning, maintenance and operation as well as the effects of feed-in and consumption on grid stability. • interpret basic regulatory requirements such as incentive regulation, grid access and grid usage mechanisms and apply them to case examples. • compare the technical and economic requirements of energy source logistics and develop simple solution approaches for the secure provision of energy.		
Course contents	<u>Smart & Secure Energy Grids /ILV / LV-Nr: SEG / 4.Semester / ECTS: 5</u> - Technical, economic and legal fundamentals of modern smart grids and electrical energy distribution - Tasks of grid operators as well as the basic principles of grid regulation, grid access and grid use - Grid planning, grid maintenance and safe operational grid management - Effects of feed-in and consumption on the stability of transmission and distribution grids - Technical, economic and legal fundamentals of heating and cooling networks in centralised and decentralised supply systems - Planning, operation and maintenance of heating and cooling networks as well as basic economic conditions - Technical, economic and legal fundamentals of the logistics of primary and secondary energy sources - Current developments in smart grids, heating and cooling networks and energy source logistics		
Teaching and learning methods	<u>Smart & Secure Energy Grids /ILV / LV-Nr: SEG / 4.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Smart & Secure Energy Grids /ILV / LV-Nr: SEG / 4.Semester / ECTS: 5</u> Portfolio assessment		

Module number:	Business Project	Scope:	
BPR		8	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	4. Semester		
	5. Semester		
Level	4. Semester: In-depth study / 5. Semester: In-depth study		
Previous knowledge	4. Semester: Business, Economics & Financing, Scientific & Empirical Methods, Digital Tools & Data Skills / 5. Semester: Business, Economics & Financing, Scientific & Empirical Methods, Digital Tools & Data Skills, Technical Project Management		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Business Project 1 /PT / LV-Nr: BPR / 4.Semester / ECTS: 4</u> - Kuster, J., Bachmann, C., Hubmann, M., Lippmann, R., & Schneider, P. (2023). Project management handbook: Agile - traditional - hybrid (Second edition). Springer. - Lock, D. (2018). Project management (Seventh edition). Routledge, Taylor & Francis Group.		
	<u>Business Project 2 /PT / LV-Nr: BPR.2 / 5.Semester / ECTS: 4</u> - Kuster, J., Bachmann, C., Hubmann, M., Lippmann, R., & Schneider, P. (2023). Project management handbook: Agile - traditional - hybrid (Second edition). Springer. - Lock, D. (2018). Project management (Seventh edition). Routledge, Taylor & Francis Group.		
Acquisition of skills	<u>Business Project 1 /PT / LV-Nr: BPR / 4.Semester / ECTS: 4</u> The participants: • plan and structure a practice-oriented project with clearly defined goals, roles and tasks. • apply project and process management methods in the energy and sustainability context. • analyze and work on real-world business problems using suitable data, tools and models. • present and document project results in a professional and audience-appropriate manner • reflect on team processes, responsibilities and lessons learned with regard to professional practice.		
	<u>Business Project 2 /PT / LV-Nr: BPR.2 / 5.Semester / ECTS: 4</u> The participants: • plan and structure a practice-oriented project with clearly defined goals, roles and tasks. • apply project and process management methods in the energy and sustainability context. • analyze and work on real-world business problems using suitable data, tools and models. • present and document project results in a professional and audience-appropriate manner • reflect on team processes, responsibilities and lessons learned with regard to professional practice.		
Course contents	<u>Business Project 1 /PT / LV-Nr: BPR / 4.Semester / ECTS: 4</u> The students independently carry out a project in small groups amounting to 4 ECTS = 100 hours. This is based on a predefined objective. Planning, coordination, budgeting, monitoring, communication and reporting, as well as finding solutions, are the responsibility of the students. The role of the course instructor focuses on coaching the students.		
	<u>Business Project 2 /PT / LV-Nr: BPR.2 / 5.Semester / ECTS: 4</u> The students independently carry out a project in small groups amounting to 4 ECTS = 100 hours. This is based on a predefined objective. Planning, coordination, budgeting, monitoring, communication and reporting, as well as finding solutions, are the responsibility of the students. The role of the course instructor focuses on coaching the students.		
Teaching and learning methods	<u>Business Project 1 /PT / LV-Nr: BPR / 4.Semester / ECTS: 4</u> Project & problem-based learning		
	<u>Business Project 2 /PT / LV-Nr: BPR.2 / 5.Semester / ECTS: 4</u> Project & problem-based learning		
Evaluation Methods Criteria	<u>Business Project 1 /PT / LV-Nr: BPR / 4.Semester / ECTS: 4</u> Portfolio assessment		
	<u>Business Project 2 /PT / LV-Nr: BPR.2 / 5.Semester / ECTS: 4</u> Portfolio assessment		

Module number:	Data Analytics	Scope:	
DAC		5	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	5. Semester		
Level	5. Semester: Introduction & in-depth study		
Previous knowledge	5. Semester: Digital Tools & Data Skills		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Data Analytics /ILV / LV-Nr: DAC / 5.Semester / ECTS: 5</u> - Demirbaga, Ü., Aujla, G. S., Jindal, A., & Kalyon, O. (2024). Big Data Analytics: Theory, Techniques, Platforms, and Applications. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-55639-5 - Garg, V., Goel, R., Tiwari, P., & Döngül, E. S. (2024). Handbook of Artificial Intelligence Applications for Industrial Sustainability: Concepts and Practical Examples (1st edn). CRC Press. https://doi.org/10.1201/9781003348351 - Lee, R. (Ed.). (2025). Big Data and Data Science Engineering: Volume 7 (Vol. 759). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-78373-9		
Acquisition of skills	<u>Data Analytics /ILV / LV-Nr: DAC / 5.Semester / ECTS: 5</u> The participants: • model energy- and sustainability-related data sets using advanced analytical methods and assess the suitability of different analytical approaches. • develop simple statistical and algorithmic models for forecasting, classifying or analysing trends in energy data and sustainability indicators. • validate data and analytical models through quality checks, error analyzes and plausibility checks and interpret the results critically. • use advanced analytical techniques such as correlation, regression, cluster or time series analyzes to identify more complex relationships. • derive data-based recommendations for action on energy efficiency, sustainability assessment or operational decisions and argue for them convincingly.		
Course contents	<u>Data Analytics /ILV / LV-Nr: DAC / 5.Semester / ECTS: 5</u> - Advanced analysis methods for energy and sustainability data - Modeling of basic forecasts and classifications using statistical and algorithmic methods - Data validation and quality checks, including error and plausibility analyzes - Fundamentals of time series analysis for consumption and generation data - Interpretation of analytical models for decision support in energy and sustainability management - Development of data-based recommendations for action and evaluation of analytical results - Current methods and tools for advanced data analysis in the energy sector		
Teaching and learning methods	<u>Data Analytics /ILV / LV-Nr: DAC / 5.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Data Analytics /ILV / LV-Nr: DAC / 5.Semester / ECTS: 5</u> Portfolio assessment		

Module number:	Energy & Sustainability Controlling	Scope:	
ESC		5	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	5. Semester		
Level	5. Semester: Introduction & in-depth study		
Previous knowledge	5. Semester: Fundamentals of sustainability and energy		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Energy & Sustainability Controlling /ILV / LV-Nr: ESC / 5.Semester / ECTS: 5</u> - Çaliyurt, K. T. (Ed.). (2022). New Approaches to CSR, Sustainability and Accountability, Volume III. Springer Nature Singapore. https://doi.org/10.1007/978-981-16-9364-9 - Dathe, T., Dathe, R., Dathe, I., & Helmold, M. (2022). Corporate Social Responsibility (CSR), Sustainability and Environmental Social Governance (ESG): Approaches to Ethical Management. Springer International Publishing. https://doi.org/10.1007/978-3-030-92357-0 - Ibidapo, T. A. (2022). From Industry 4.0 to Quality 4.0: An Innovative TQM Guide for Sustainable Digital Age Businesses. Springer International Publishing. https://doi.org/10.1007/978-3-031-04192-1 - Kandpal, V., Jaswal, A., Santibanez Gonzalez, E. D. R., & Agarwal, N. (2024). Sustainable Energy Transition: Circular Economy and Sustainable Financing for Environmental, Social and Governance (ESG) Practices. Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-52943-6 - Klos, Z. S., Kalkowska, J., & Kasprzak, J. (Eds.). (2022). Towards a Sustainable Future - Life Cycle Management: Challenges and Prospects. Springer International Publishing. https://doi.org/10.1007/978-3-030-77127-0 - Touriki, F. E., Belhadi, A., Kamble, S., & Benkhati, I. (2022). Sustainable Excellence in Small and Medium Sized Enterprises: Continuous Improvement Approaches that Matter. Springer Singapore. https://doi.org/10.1007/978-981-19-0371-7 - Zipse, O., Hornegger, J., Becker, T., Beckmann, M., Bengsch, M., Feige, I., & Schober, M. (Eds.). (2023). Road to Net Zero: Strategic Pathways for Sustainability-Driven Business Transformation. Springer International Publishing. https://doi.org/10.1007/978-3-031-42224-9		
Acquisition of skills	<u>Energy & Sustainability Controlling /ILV / LV-Nr: ESC / 5.Semester / ECTS: 5</u> The participants: • explain the basic instruments of sustainability and energy controlling and describe their fields of application in companies and organizations. • analyze sustainability indicators and indicator systems and assess their meaningfulness with regard to ecological and economic targets. • create simple energy and sustainability reports and interpret their results in the context of strategic sustainability goals. • evaluate the effectiveness of energy- and sustainability-related measures using quantitative and qualitative controlling methods. • develop basic recommendations for action to improve energy efficiency, resource use and sustainable organizational management.		
Course contents	<u>Energy & Sustainability Controlling /ILV / LV-Nr: ESC / 5.Semester / ECTS: 5</u> - Fundamentals and instruments of sustainability controlling, with a focus on indicators, key figures and reporting structures - Energy controlling as part of sustainable corporate management, including energy indicators, consumption analyzes and efficiency parameters - Preparation and analysis of sustainability and energy reports, including structured data collections and the evaluation of key indicators - Steering models for ecological and economic sustainability goals, including the fundamentals of objective systems and effectiveness analyzes - Methods of data collection and data quality in sustainability and energy controlling - Management decisions based on controlling information, with a focus on energy efficiency, resource management and sustainability strategies - Current standards and developments in reporting, such as sustainability-related indicator sets and regulatory requirements - Integration of energy- and sustainability-related controlling systems into existing organizational structures		
Teaching and learning methods	<u>Energy & Sustainability Controlling /ILV / LV-Nr: ESC / 5.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work		
Evaluation Methods Criteria	<u>Energy & Sustainability Controlling /ILV / LV-Nr: ESC / 5.Semester / ECTS: 5</u> Portfolio assessment		

Module number:	Innovation, Business & Research Transfer	Scope:	
IBR		2	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	5. Semester		
Level	5. Semester: In-depth study		
Previous knowledge	5. Semester: none		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Innovation, Business & Research Transfer /ILV / LV-Nr: IBR / 5.Semester / ECTS: 2</u> aktuelle wissenschaftliche Publikationen sowie praxisorientierte Beiträge aus Fachzeitschriften, Reports, Fallstudien, Verbandsunterlagen		
Acquisition of skills	<u>Innovation, Business & Research Transfer /ILV / LV-Nr: IBR / 5.Semester / ECTS: 2</u> The participants: • identify current developments and innovation impulses from academia, industry and research and place them in the context of energy and sustainability management. • analyze practical and research examples with regard to their relevance and transferability to professional questions. • reflect on the importance of research, innovation and interdisciplinary exchange for their own professional development. • transfer selected findings into application-oriented ideas, strategies or improvement proposals for practice.		
Course contents	<u>Innovation, Business & Research Transfer /ILV / LV-Nr: IBR / 5.Semester / ECTS: 2</u> Students gain insights into current topics, developments and research findings in energy & sustainability management. Various experts from academia, industry and research provide practice-oriented input on innovation and transfer issues. The content is explored in greater depth through moderated discussions, fireside chats or field trips, and reflected on with regard to its relevance to professional practice. Topics covered include: - current innovation and research trends in the sector - examples of successful corporate and research collaborations - approaches to knowledge and technology transfer - digital transformation processes in the energy industry and in sustainability management - reflection on one's own learning and transfer processes in a professional context		
Teaching and learning methods	<u>Innovation, Business & Research Transfer /ILV / LV-Nr: IBR / 5.Semester / ECTS: 2</u> Vorlesungen, Diskussionen, Fallstudien, Exkursionen		
Evaluation Methods Criteria	<u>Innovation, Business & Research Transfer /ILV / LV-Nr: IBR / 5.Semester / ECTS: 2</u> Portfolio assessment		

Module number:	International Urban & Community Development Project	Scope:	
INW		2	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	5. Semester		
Level	5. Semester: In-depth study		
Previous knowledge	5. Semester: Fundamentals of project management, sustainability & energy		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>International Urban & Community Development Project /PT / LV-Nr: INW / 5.Semester / ECTS: 2</u> The literature is selected for the specific project topics and will be announced at the beginning or during the course of the project. It includes current scientific publications, case studies, international reports, and practice-oriented resources on sustainable urban and community development.		
Acquisition of skills	<u>International Urban & Community Development Project /PT / LV-Nr: INW / 5.Semester / ECTS: 2</u> The participants: • develop innovative solution approaches for real-world problems in the field of Sustainable Urban & Community Development within an interdisciplinary team. • communicate and present project results in an audience-appropriate way in an international context. • reflect on team processes, cultural perspectives and their own role in interdisciplinary projects.		
Course contents	<u>International Urban & Community Development Project /PT / LV-Nr: INW / 5.Semester / ECTS: 2</u> - Project work on real-world case examples, taking economic and ESG criteria into account - Teamwork in interdisciplinary and intercultural groups - Development and presentation of an innovative project concept		
Teaching and learning methods	<u>International Urban & Community Development Project /PT / LV-Nr: INW / 5.Semester / ECTS: 2</u> Project & problem-based learning		
Evaluation Methods Criteria	<u>International Urban & Community Development Project /PT / LV-Nr: INW / 5.Semester / ECTS: 2</u> Portfolio assessment		

Module number:	European & International Law	Scope:	
LAW		5	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	5. Semester		
Level	5. Semester: Introduction		
Previous knowledge	5. Semester: Fundamentals of the legal systems in the students' countries of origin		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>European & International Law /ILV / LV-Nr: LAW / 5.Semester / ECTS: 5</u> - Heffron, R. J. (2021). Energy Law (2nd ed). Springer International Publishing AG. - Hodson, D., Puetter, U., Saurugger, S., & Peterson, J. (Eds). (2022). The institutions of the European Union (Fifth edition). Oxford University Press. - Kenealy, D., Hadfield, A., Corbett, R., & Peterson, J. (Eds). (2022). The European Union: How does it work? (Sixth edition). - Techera, E. J. (2025). The sustainable development goals in international law and policy. Routledge. https://doi.org/10.4324/9781003583981		
Acquisition of skills	<u>European & International Law /ILV / LV-Nr: LAW / 5.Semester / ECTS: 5</u> The participants: • analyze the structure, functions and decision-making procedures of key European institutions in the context of energy- and sustainability-related legislation. • assess the impact of institutional interactions within the EU on energy and climate policy legal acts and transformation processes. • interpret international and European legal sources and derive their significance for companies and public organizations in energy & sustainability management. • examine the role of international institutions and compare their influence with that of the EU on global energy and sustainability governance.		
Course contents	<u>European & International Law /ILV / LV-Nr: LAW / 5.Semester / ECTS: 5</u> - European and international institutions - International agreements relating to energy & sustainability management - EU legislative and decision-making processes - Legal acts in the energy and sustainability field - Governance and compliance, including the implementation of European requirements in companies, oversight by European and national regulatory authorities, and requirements in the area of ESG and sustainability reporting - Case studies on the influence of European institutions on energy prices, emissions trading, supply chain law and climate litigation before the European Court of Justice		
Teaching and learning methods	<u>European & International Law /ILV / LV-Nr: LAW / 5.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work, field trip		
Evaluation Methods Criteria	<u>European & International Law /ILV / LV-Nr: LAW / 5.Semester / ECTS: 5</u> Portfolio assessment		

Module number:	Regional & Resilient Energy Systems	Scope:	
RES		5	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	5. Semester		
Level	5. Semester: Introduction & in-depth study		
Previous knowledge	5. Semester: Energy technologies, smart energy systems		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Regional & Resilient Energy Systems /ILV / LV-Nr: RES / 5.Semester / ECTS: 5</u> - Di Somma, M., Papadimitriou, C., Graditi, G., & Kok, K. (Eds). (2025). Integrated local energy communities: From concepts and enabling conditions to optimal planning and operation. Wiley-VCH. https://doi.org/10.1002/9783527843282 - Hua, W., Zhang, X.-P., & Wallom, D. C. H. (Eds). (2025). Digitalisation of local energy systems. Springer. - Lavikka, R., Rehman, H. U., Reda, F., & Kazi, A. S. (Eds). (2022). Positive energy buildings: Concepts, challenges and opportunities. Springer.		
Acquisition of skills	<u>Regional & Resilient Energy Systems /ILV / LV-Nr: RES / 5.Semester / ECTS: 5</u> The participants: • describe regional energy systems and explain their importance for sustainability, security of supply and resilience. • analyze regional energy demand and energy infrastructures using GIS and assess spatial relationships between energy generation, consumption and grids. • collect exemplary energy-relevant data such as local load profiles, site parameters or potential data and use these for GIS-supported analyzes. • assess the risks and disruption potential of regional energy systems and derive measures to increase resilience. • develop basic technical and organizational solution approaches for regional energy systems, incorporating locally collected data, GIS analyzes as well as participation and decision-making processes. • interpret basic political decision-making processes and explain how citizen participation and local governance influence regional energy projects.		
Course contents	<u>Regional & Resilient Energy Systems /ILV / LV-Nr: RES / 5.Semester / ECTS: 5</u> - Fundamentals of regional energy systems, including electricity, heating, cooling and locally available resources - GIS-based analysis of regional energy flows, including the spatial assessment of potentials, grid structures and supply gaps - Collection of energy-relevant data and integration into simple GIS-based site and potential analyzes - Assessment of the performance and stability of regional electricity, heating and cooling infrastructures - Resilience of regional energy systems, including risks, disruptive factors and basic measures for system security - Political decision-making processes in regional energy planning, including basic procedural structures and responsibilities - Citizen participation in energy projects, including concepts of local participation and their importance for acceptance and implementation - Current developments in resilient regional energy systems, including local governance and participatory energy planning		
Teaching and learning methods	<u>Regional & Resilient Energy Systems /ILV / LV-Nr: RES / 5.Semester / ECTS: 5</u> Lectures, discussions, exercises, case studies, group work, field trip		
Evaluation Methods Criteria	<u>Regional & Resilient Energy Systems /ILV / LV-Nr: RES / 5.Semester / ECTS: 5</u> Portfolio assessment		

Module number:	Internship & Business Personality Development	Scope:	
IBP		20	ECTS
Degree program	University of Applied Sciences Bachelor's Program Energy & Sustainability Management full-time		
Position in the curriculum	6. Semester		
Level	6. Semester: In-depth study		
Previous knowledge	6. Semester: all content from semesters 1 to 5		
Blocked	no		
Participant group	A-levels and/or corresponding previous training, beginners		
Literature recommendation	<u>Integrated Internship /BPR / LV-Nr: IBP / 6.Semester / ECTS: 20</u> - Labor, S. L. (2020). Student internship success workbook: 20+ lessons and activities for student intern career readiness : Student's guide (2nd edition). CreateSpace Independent Publishing.		
Acquisition of skills	<u>Integrated Internship /BPR / LV-Nr: IBP / 6.Semester / ECTS: 20</u> The participants: • take on responsibility in a real-world professional environment of energy and sustainability management and apply the knowledge they have acquired in a practice-oriented way. • analyze and evaluate operational structures, processes and tasks with regard to professional, organizational and economic interrelationships. • communicate and cooperate professionally in an interdisciplinary work context and help shape tasks independently. • reflect on personal strengths, areas for development and career prospects. • further develop their professional attitude, self-management and practical skills. • analyze workplace-related stress and resource factors at the internship organization and derive suitable strategies for a sustainable work-life balance in everyday working life from them. • assess diversity dimensions and possible exclusion mechanisms in the workplace and develop practice-oriented approaches for respectful, inclusive collaboration at work.		
Course contents	<u>Integrated Internship /BPR / LV-Nr: IBP / 6.Semester / ECTS: 20</u> - Professional practical work in a relevant company or organization - Application of professional, methodological and social skills in practice, including the use of individual work-life balance strategies and inclusive behavior in the work environment - Insights into operational processes, project management and decision-making structures - Reflection on professional profiles, roles and expectations in energy and sustainability management, including engagement with role models, diversity aspects and inclusive collaboration - Preparation of an internship and reflection report that also documents personal insights into work-life balance and diversity in a real-world work context		
Teaching and learning methods	<u>Integrated Internship /BPR / LV-Nr: IBP / 6.Semester / ECTS: 20</u> Work placement		
Evaluation Methods Criteria	<u>Integrated Internship /BPR / LV-Nr: IBP / 6.Semester / ECTS: 20</u> Portfolio		

2.4 Internship

Students independently select an internship position. In doing so, they can draw on the extensive range of internship listings provided by Kufstein University of Applied Sciences in Tyrol. The program director verifies that the internship activities align with the program's curriculum and qualification profiles. Subsequently, the program administration assesses whether the professional internship aligns with the program's educational objectives and whether the student can be assigned tasks appropriate to his or her level of qualification. A detailed internship guide assists students with organizing their practical semester; the International Office (IRO) and the program administration are also available to students for questions and support.

Students must apply for the professional internship using a form (= job description). The form includes key information about the student and the internship supervisor, as well as the objectives and tasks/activities at the internship company. The internship is confirmed or approved by the signatures of the program administration and the internship supervisor.

The student must reflect on, document, and present the experiences and insights gained, as well as evaluate the internship site. Conversely, the internship supervisor must evaluate the student. The student must prepare an interim report, a final report, and a presentation, as well as complete an evaluation form. At the beginning of the internship, the student receives an internship guide listing the items to be addressed. A key requirement is to compare the agreed-upon objectives with the objectives actually achieved. The documentation prepared by the student and the supervisor is evaluated by the program director. If the achievement of the objectives and alignment with the student's skill level are not ensured, the respective internship site will be excluded from future placements. A list of internship sites and the corresponding reports are available to subsequent students via the Moodle learning platform.

2.5 Semester abroad

A semester abroad is an integral part of the third semester of the full-time track of the program and was deliberately retained by the development team at this stage of the program. This decision is based on pedagogical, content-related, and organizational considerations that ensure an optimal combination of foundational business education and international experience. By the third semester, students have acquired the core foundational competencies in business and economics— which enable them to make a substantively sound transition into economics and social science courses at partner universities. These modules are offered in a comparable format at many international universities, ensuring a high degree of alignment with the competencies required by the curriculum.

Placing the semester abroad at the end of the foundational economics phase also offers clear educational benefits. Students can apply and critically reflect on their existing knowledge in a new cultural and academic environment. They gain insights into different economic traditions, institutional frameworks, and social systems, thereby deepening their understanding of global economic interrelationships. These experiences not only foster international competence but also strengthen self-organization, adaptability, and intercultural communication skills. These are key qualifications for the subsequent specialization in the field. Upon their return, students can apply their knowledge specifically to the energy and sustainability-related context of their further studies, thereby incorporating international perspectives into their future project and research work.

3 ADMISSION REQUIREMENTS

Admission requirements at Kufstein University of Applied Sciences in Tyrol are governed by the following provisions:

1. The general admission requirements are governed by § 4 FHG, as amended; this applies to **individuals with a general university entrance qualification**.

2. **Individuals without a high school diploma** must take an **entrance qualification examination** in accordance with § 64a of the University Act (UG) of 2002, as amended. In accordance with a regulation issued by the rectorate of a university, these individuals obtain general university entrance qualifications for bachelor's programs within a field of study group by passing the entrance qualification examination. Successful completion of the university entrance qualification examination thus entitles the student to admission to all degree programs within the field of study group for which the qualification was obtained.

The university entrance qualification examination may be taken for specific fields of study in accordance with a regulation issued by a university's rectorate; for Kufstein University of Applied Sciences in Tyrol, the relevant field of study is: Social and Economic Sciences (e.g., Business Administration, Business Education, Statistics, Sociology).

Applicants who have completed a 3-year **vocational secondary school program**, completed an **apprenticeship in the dual system**, or obtained a **subject-specific German Fachhochschulreife** qualify to study at Kufstein University of Applied Sciences, Tyrol, by passing supplementary exams in German, English, and mathematics. In the case of the German Fachhochschulreife, the supplementary exam must be taken only in those of the three subjects in which the grade on the transcript is "Unsatisfactory" or lower. All supplementary exams must be successfully completed before the start of the third semester.

3. For **individuals with relevant dual vocational training, completion of an apprenticeship** in one of **the following fields**, as specified in the current announcement by the Federal Ministry of Economy, Family, and Youth, is a prerequisite for admission:

- Construction
- Banking
- Office, Administration, Organization
- Chemistry
- Physics
- Electrical Engineering, Electronics
- Retail
- Information and Communication Technologies
- Metallurgy and Mechanical Engineering
- Transport and Warehousing

4. **Individuals who have graduated** from one of the following relevant **vocational secondary schools** with a program of at least three years may also be admitted:

- Hotel Management School, Tourism School, Hospitality School
- Business schools
- Technical schools for tourism professions
- Technical schools for business professions
- Business technical schools
- Technical schools for agricultural and forestry professions
- Commercial schools

5. If foreign certificates are not deemed equivalent in terms of content and requirements of an Austrian high school diploma, supplementary exams in English and mathematics must be taken before the start of studies. Such exams may be taken either through

external providers or at the Kufstein University of Applied Sciences Tyrol International Business School for a fee.

Newly established apprenticeship programs in similar fields must be recognized accordingly.

The **individuals described in sections 3 and 4** must, as an admission requirement, complete **supplementary exams** by the start of the third semester and, if necessary, take corresponding preparatory courses. This is possible at the International Business School of Kufstein University of Applied Sciences Tyrol.

The following supplementary exams are required for this group:

- German
- English
- Mathematics

Below is an overview of which German FOS/BOS specializations qualify as relevant admission requirements. In these cases, supplementary exams in mathematics, German, and English must be taken during the first semester (if a "Mangelhafter" or a lower grade was received in these subjects).

	ESM ft
FOS	
- Technology	x
- Business & Administration	x
- Social Services	x
- Agriculture, Biotechnology, and Environmental Technol-	x
- Design	x
- Health	x
- International Economics	x
BOS	
- Technology	x
- Business & Administration	x
- Social Services	x
- Agriculture, Biotechnology, and Environmental Technology	x
- Health	x
- International Economics	x
For internships in relevant fields (marketing, business, ad- ministration), other fields of study may also be accepted (upon consultation with the program director).	x

The language of instruction for the full-time track of the program is 100% English. Therefore, a verified language proficiency level of at least B2 is required.