

# Study Regulations of the Bachelor Study Program

## **Energy Business**

leading to the award of the academic title

Bachelor of Arts in Business,  
abbreviated B.A.

as an appendix of the statutes of FH Kufstein Tirol

**Organizational form:** Full-time

**Duration:** 6 semesters

**Scope:** 180 ECTS

**Number of places per academic year:** 30 full-time

Version 1

Accredited by AQ Austria on December 13, 2017

Content based on the accreditation application

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**With the amendment to the University Act 2020, the so-called "University of Applied Sciences Studies Act (FHStG)" has been renamed "University of Applied Sciences Act (FHG)". Accordingly, a necessary editorial adjustment was made in this document on January 13th, 2021 and the name FHStG was replaced by FHG.**

# 1 JOB PROFILES

## 1.1 Fields of employment

The broad subject fields of the qualification profile open up varied employment fields for students. The following fields describe selected employment opportunities and tasks for which graduates of the study program Energy Business are qualified.

### **Settlement and balancing group management**

Customer settlement is facing new challenges with respect to its scope and complexity due to the unbundling of network operation and energy supply, complex funding regimes for renewable energies, the smart meter roll-out as well as mobile electricity products for electric vehicles. Individual tasks for graduates, e.g., lie in the environment of data processing for smart-meter data. The tasks consist of generating quantity and revenue statistics as the basis for the annual financial statement and reporting. The acquisition, checking and balancing of energy quantities for measuring-point and distribution-network operators is an employment field for graduates due to their in-depth knowledge of market processes in regard to data communication and legal stipulations such as MaBiS<sup>1</sup>. Settlement and balancing group management require planning, implementation and the introduction of new measurement technologies due to sustained digitization in Energy Business. Graduates develop concepts for integrating data from intelligent measurement systems.

### **End-customer sales and customer insights:**

The industry-wide trends of liberalization, energy transformation and, now especially, digitization including the smart meter roll-out require consistently innovative business models in order for companies to survive in the competition for end customers. Graduates are especially in demand as product-development and product-innovation managers in the area of electricity and natural gas. On the path towards the marketable product, they are additionally responsible for potential analyses while supporting the creation of business cases. Within this context, customer insights also play an increasingly important role in ascertaining market trends and analyzing customer requirements.

### **Energy trade and portfolio management:**

Energy trade has become increasingly important, and trade volumes have continuously increased since the liberalization of the energy business. New forms such as virtual power plants<sup>2</sup> and procurement collectives are being established on a continuous basis. First and foremost, portfolio management and the associated stock-exchange and OTC trade<sup>3</sup> represent an employment field for energy-management experts within this context. Essential tasks include performing research and analyses in various market segments of energy wholesale markets. Experts rely on market reports from consulting companies or support the creation of such reports. Moreover, graduates also work in marketing for power-plant capacities, which can, e.g., refer to direct marketing of renewable energy systems, but also the marketing of virtual power plants for short-term and regulated energy markets.

### **Energy consulting:**

Energy consulting and, in further consequence, energy services are becoming increasingly important in Energy Business due to national and EU-wide energy-efficiency targets. Employment fields for consultants especially include cooperation in customer projects with emphasis on energy consulting. Their tasks incorporate recognizing location specifics and process acquisition by means of digital methods in order to develop solution paths and measure concepts from acquired data in the area of energy efficiency and energy services. Furthermore, consultants establish an interface to customers to whom they present solution approaches and products as they concurrently make themselves available as contact partners in all project-related matters.

### **Operative regulation management:**

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<sup>1</sup> Market Regulations for Balancing Group Settlement in the Electricity Sector.

<sup>2</sup> Interconnecting decentralized electricity producers as a group that can reliably provide electrical services

<sup>3</sup> Over-the-counter trade (off-market trade)

Operative regulation management refers to the tasks of planning, monitoring and optimizing investments and maintenance measures of a company operating in a regulated energy market according to the stipulations of the regulatory authorities for the electricity and gas economy. Energy managers are responsible for interpreting the stipulations of regulatory authorities within the controlling team of a network operator and derive measures for the company.

### **Project planning for energy-production plants:**

The establishment but also optimization of decentralized energy production plants, i.e. plants for combined heat and power and renewable energies, play an increasingly important role as part of the energy transformation. The tasks of energy-management experts include the execution and creation of location and requirement analyses and energy concepts. First and foremost, the focus is on comparing various production technologies in an economical sense. Experts also coordinate interdisciplinary project teams that focus on controlling internal project interfaces in regard to technical, business-related and legal work packages. Moreover, energy-management experts are also active in the processing of approval processes and communication with customers in which, first and foremost, the profitability and sustainability of these projects are portrayed and justified.

### **Management of distribution and transmission network operations:**

The task of the network-operator sector is to ensure consistently high network reliability and availability. Graduates develop concepts for increasing the yield and availability of distribution and transmission networks. They, e.g., develop cost-effective solutions for the integration of decentralized feed-ins and the introduction of smart meters. Network-expansion projects and the creation of safety concepts associated with transborder electricity trade are essential employment fields in addition to the integration of renewable energies. Due to their broad knowledge of interdependencies in Energy Business, graduates can also take on tasks such as cooperating and communicating with European transmission-network operators within the context of ENTSO-E<sup>4</sup>.

## **1.2 Qualification profile**

The qualification targets or learning outcome of the Bachelor study program Energy Business correspond to the subject-specific scientific and work-related requirements and the ISCED 07887 (International Standard Classification of Education). The conveyed content qualifies the graduate for the professional employment fields stated above.

### **1.2.1 Basic skills**

The varied employment fields of Energy Business require an understanding of applied engineering sciences in order to grasp the technical correlations in energy production and energy transmission. Students initially establish a fundamental understanding of natural science and engineering-science methods.

Graduates are also able to comprehend business-related, political-economical and legal concepts and interpret economically relevant key figures. The following modules and courses are required in order to attain subject-specific basic skills:

#### **Module Applied Engineering Sciences (AIW)**

- Fundamentals of Mechanics and Thermodynamics
- Fundamental of Electrical Engineering
- Laboratory Exercise Electrical Engineering
- Thermodynamics and Fluid Dynamics

#### **Module Mathematics and Natural Sciences (MNW)**

- Chemistry for Energy Business
- Physics for Energy Business

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<sup>4</sup> European Network of Transmission System Operators for Electricity

- Mathematics for Energy Business

### **Module Law and Energy Policy (REP)**

- Introduction to Law
- Energy Law and Energy Policy

### **Module Economic Sciences (WWS)**

- Introduction to Business Administration
- Introduction to Political Economics
- Introduction to Accounting

## **1.2.2 Core skills**

Core skills are consolidated building on basic skills in order to meet the requirements profile of described employment fields. The new module "Digitization and Data Management" has been introduced<sup>5</sup>. The goal of this module is to convey the ability to acquire, analyze and interpret data based on digital methods. Complementary courses in this module consolidate and apply these capabilities. Graduates have well-founded expertise and knowledge of various energy-production technologies as well as of essential processes of energy supply and its associated infrastructure. Fundamental knowledge of methods for the economic efficiency calculation, acquirement of location specifics and the creation of solution-oriented concepts round off the profile. Thus, graduates are also able to plan, structure, coordinate, control, conclude and evaluate projects.

Subject-specific core skills are achieved with the following **modules** and **courses**:

### **Module Digitization and Data Management (DDM)**

- Energy-Efficient Buildings
- Internet Technologies (E)
- Introduction of Data Science (E)
- Energy Audit
- Data Analysis

### **Module Renewable Energies (EEG)**

- Resources Renewable Energies
- Renewable Heat Generation
- Regenerative Electricity Production

### **Module Fossil Energies (FEG)**

- Fossil Energies
- Power-Plant Engineering
- Gas Economy

### **Module Public Infrastructure (OEI)**

- Introduction to Energy Business
- Electric Power-Supply Networks
- Waste Management
- Energy Trade and Market Mechanisms (E)

### **Module Project Development (PJE)**

- Investment and Economic-Efficiency Calculation

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<sup>5</sup> Application for internal revision of the study program European Energy Business, 2014

- Project Management (E)
- Innovation in Energy Business (E)

The core skills conveyed in the study program Energy Business are depicted in the following matrix within the context of job profiles for which these are required (black fields).

Core skills	Fields of employment					
	Settlement and Balancing Group Manage-	End-Customer Distribution and Customer	Energy Trade and Portfolio Management:	Energy Consult-	Operative Regulation Management	Project planning for Energy-Production Plants Management Distribution and Transmis- sion Network Operation
Renewable Energies						
Fossil Energies						
Digitization						
Infrastructure						
Project Development						

### 1.2.3 Complementary Skills

In addition to basic skills and core skills, a series of language, communication and social abilities are required for business-related tasks. The ability to work in a team as well as communication skills are especially essential within this context. Graduates are able to work on problems in written form in an analytical and structured manner and give an oral presentation. They also know how to communicate about information, ideas, problems and solutions with experts and laypersons alike.

The implementation of the typical education mandate for universities of applied sciences regarding practical orientation and internationality is performed by combining scientific and work-related module offers. The students' work-related abilities are promoted by increasing the degree of practical application with each semester (practical projects in cooperation with external partners in semester 3 and 4), culminating in an internship in semester 6. The claim for internationality is fulfilled with a high share of English-language courses and a compulsory semester abroad.

#### Module Semester Abroad (ALS)

- Selected Topics Energy Business
- Selected Topics Social Competences
- Selected Topics Area Studies and Language

#### Module Communication (KMM)

- Teamwork and Communication (E)
- Presentation Skills (E)
- Academic Writing
- Marketing (E)

**Module Practical Transfer (PXT)**

- Bachelor Thesis Seminar I and II
- Practical Project I and II
- Internship

**Module Languages (SPR)**

- Foreign Language I, II and III

## 2 CCURRICULUM

### 2.1 Curriculum information

	Full-time	Part-time	Comments
<b>First academic year</b> (YYYY/YY+1)	2018/19		
<b>Normal duration of studies</b> (number of semesters)	6		
<b>Compulsory course hours per week</b> (total of all sem.)	98		A semester abroad with weekly course hours at the respective partner university is envisaged for the full-time study program within the
<b>Course teaching weeks per semester</b> (number of weeks)	15		
<b>Compulsory course hours</b> (total of all sem.)	1,470		A semester abroad with weekly courses at the respective partner university is envisaged for the full-time study program within the
<b>Compulsory ECTS</b> (total of all sem.)	180		
<b>Start of winter semester</b> (date, note: poss. CW)	CW 40		
<b>End of winter semester</b> (date, note: poss. CW)	CW 7		
<b>Start of summer semester</b> (date, note: poss. CW)	CW 10		
<b>End of summer semester</b> (date, note: poss. CW)	CW 28		
<b>Weeks in winter semester</b>	15		
<b>Weeks in summer semester</b>	15		
<b>Compulsory semester abroad</b> (semester)	Semester 5		
<b>Teaching language</b> (to be indicated)	German/English		The proportion of English-language courses amounts to 20% (16 course hours per week, 26 ECTS).
<b>Internship</b> (semester, duration in weeks per semester)	Semester 6 14 weeks		
<b>Result of the merging of study programs or split-off from the study program</b> (study-program code, only to be indicated for merging or split-off)			



## 2.2 Curriculum

Semester 1								
LV no.	LV designation (notice "E" for English-language course)	LV type	SWS	Number of	ASWS	ALVS	Module	ECTS
V.MNW.01	Chemistry for Energy Business	ILV	1	1	1	15	MNW	2
V.MNW.02	Physics for Energy Business	ILV	1	1	1	15	MNW	2
V.AIW.01	Fundamentals of Mechanics and	ILV	2	1	2	30	AIW	3
V.EEG.01	Resources Renewable Energies	ILV	1	1	1	15	EEG	2
V.KMM.01	Teamwork and Communication (E)	SE	1	2	2	30	KMM	2
V.MNW.03	Mathematics for Energy Business	ILV	2	1	2	30	MNW	3
V.FEG.01	Fossil Energies	VO	1	1	1	15	FEG	1
V.OEI.01	Introduction to Energy Business	VO	1	1	1	15	OEI	1
V.REP.01	Introduction to Law	VO	2	1	2	30	REP	2
V.SPR.01	Foreign Language I	ILV	3	2	6	90	SPR	4
V.WWS.01	Introduction to Business Administration	ILV	2	1	2	30	WWS	3
V.WWS.02	Introduction to Political Economics	VO	2	1	2	30	WWS	2
V.WWS.03	Introduction to Accounting	ILV	2	1	2	30	WWS	3
Total line:			21		25	375		30
LVS = Total SWS · 15 LV weeks			315					

Semester 2								
LV no.	LV designation (notice "E" for English-language course)	LV type	SWS	Number of	ASWS	ALVS	Module	ECTS
V.AIW.02	Fundamentals Electrical Engineering	VO	2	1	2	30	AIW	2
V.AIW.03	Laboratory Exercise Electrical Engineering	UE	1	3	3	45	AIW	2
V.AIW.04	Thermodynamics and Fluid Dynamics	ILV	2	1	2	30	AIW	3
V.DDM.01	Energy-Efficient Buildings	ILV	2	1	2	30	DDM	3
V.EEG.02	Renewable Heat Generation	VO	2	1	2	30	EEG	2
V.KMM.02	Presentation Skills (E)	UE	1	2	2	30	KMM	2
V.KMM.03	Academic Writing	SE	1	1	1	15	KMM	2
V.REP.02	Energy Law and Energy Policy	VO	1	1	1	15	REP	1
V.FEG.02	Power-Plant Engineering	ILV	4	1	4	60	FEG	6
V.SPR.02	Foreign Language II	ILV	3	2	6	90	SPR	4
V.DDM.02	Internet Technologies (E)	ILV	2	1	2	30	DDM	3
Total line:			21		27	405		30
LVS = Total SWS · 15 LV weeks			315					

Semester 3								
LV no.	LV designation (notice "E" for English-language course)	LV type	SWS	Number of	ASWS	ALVS	Module	ECTS
V.PXT.01	Bachelor Thesis Seminar I	SE	0.5	15	7.5	22.5	PXT	6
V.EEG.03	Regenerative Electricity Production	ILV	4	1	4	60	EEG	6
V.PJE.01	Investment and Economic-Efficiency	VO	3	1	3	45	PJE	3
V.PXT.02	Practical Project I	PT	2	4	8	120	PXT	4
V.PJE.02	Project Management (E)	ILV	2	1	2	30	PJE	3
V.SPR.03	Foreign Language III	ILV	3	2	6	90	SPR	4
V.OEI.02	Electric Power-Supply Networks	VO	2	1	2	30	OEI	2
V.DDM.03	Introduction of Data Science (E)	VO	2	1	2	30	DDM	2
Total line:			18.5		34.5	427.5		30
LVS = Total SWS · 15 LV weeks			277.5					

Semester 4								
LV no.	LV designation (notice "E" for English-language course)	LV type	SWS	Number of	ASWS	ALVS	Module	ECTS
V.PXT.03	Practical Project II	PT	2	4	8	120	PXT	4
V.DDM.04	Energy Audit	ILV	3	1	3	45	DDM	4
V.OEI.03	Waste Management	ILV	2	1	2	30	OEI	3
V.FEG.03	Gas Economy	VO	2	1	2	30	FEG	2
V.PJE.03	Innovation in Energy Business (E)	SE	2	1	2	30	PJE	4
V.OEI.04	Energy Trade and Market Mechanisms (E)	ILV	4	2	8	120	OEI	6
V.KMM.04	Marketing (E)	ILV	2	1	2	30	KMM	3
V.DDM.05	Data Analysis	UE	2	4	8	120	DDM	4
Total line:			19		35	525		30
LVS = Total SWS · 15 LV weeks			285					

Semester 5								
LV no.	LV designation (notice "E" for English-language course)	LV type	SWS	Number of	ASWS	ALVS	Module	ECTS
V.ALS.01	Selected Topics Energy Business	ILV	10	1	0	0	ALS	18
V.ALS.02	Selected Topics Social Competences	ILV	4	1	0	0	ALS	6
V.ALS.03	Selected Topics Area Studies and Languages	ILV	4	1	0	0	ALS	6
Total line:			18		0	0		30
LVS = Total SWS · 15 LV weeks			270					

Semester 6								
LV no.	LV designation (notice "E" for English-language course)	LV type	SWS	Number of	ASWS	ALVS	Module	ECTS
V.PXT.04	Bachelor Thesis Seminar II	SE	0.5	15	7.5	22.5	PXT	8*
V.PXT.05	Internship	SE	0	1	0	0	PXT	22
Total line:			0.5		7.5	22.5		30
LVS = Total SWS · 15 LV weeks			7.5					

<b>Total SWS</b>	98	<b>Total ASWS</b>	129	<b>Total ALVS</b>	1,755	<b>Total ECTS</b>	180
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Abbreviations	
LV	Course
LVS	Course hour(s)
ALVS	Offered course hours
SWS	Course hour(s) per week
ASWS	Offered course hours per week
ECTS	ECTS credits
E	English-language course

Expenditures for the supervision of bachelor theses are not included in the curriculum matrix above. An expenditure of 0.20 SWS is envisaged per supervised bachelor thesis, thus an additional expenditure of 12 ASWS for 30 students within semester 3 and 6. This results in a total of 129 ASWS for all 6 semesters.

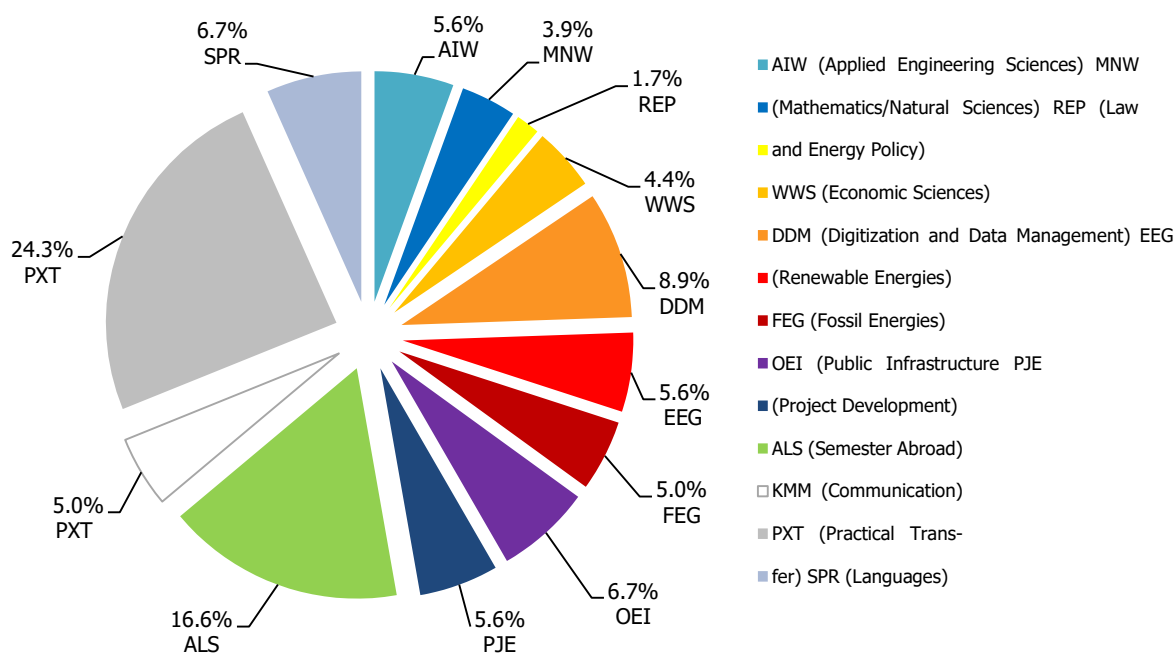
\*The 8 ECTS credits for Bachelor Seminar II are divided into 6 ECTS for Bachelor Thesis II and 2 ECTS for the final examination before an examination board.

## 2.3 Module description

The study program is divided into 17 coordinated modules. The following abbreviations are used for module descriptions, which are also integrated in the designations of individual courses.

Module designations	Skill fields (number ECTS and *share total volume)	
1. Applied Engineering Sciences (AIW)	k10 ECTS	5.6 %
2. Mathematics/Natural sciences (MNW)	7 ECTS	3.9 %
3. Law and Energy Policy (REP)	3 ECTS	1.7 %
4. Economic Sciences (WWS)	8 ECTS	4.4 %
5. Digitization and Data Management (DDM)	16 ECTS	8.9 %
6. Renewable Energies (EEG)	10 ECTS	5.6 %
7. Fossil Energies (FEG)	9 ECTS	5.0 %
8. Public Infrastructure (OEI)	12 ECTS	6.7 %
9. Project Development (PJE)	10 ECTS	5.6 %
10. Semester Abroad (ALS)	30 ECTS	16.6 %
11. Communication (KMM)	9 ECTS	5.0 %
12. Practical Transfer (PXT)	44 ECTS	24.3 %
13. Languages (SPR)	12 ECTS	6.7 %

The following module allocation results for the entire study program according to ECTS:



Contribution module for target bachelor degree program Energy Business		
	ECTS	[%]
<b>Basic skill:</b>	<b>28</b>	<b>15.6</b>
Module Applied Engineering Sciences (AIW)	10	5.6
Module Mathematics and Natural Sciences (MNW)	7	3.9
Module Law and Energy Policy (REP)	3	1.7
Module Economic Sciences (WWS)	8	4.4
<b>Core skill:</b>	<b>57</b>	<b>31.8</b>
Module Digitization and Data Management (DDM)	16	8.9
Module Renewable Energies (EEG)	10	5.6
Module Fossil Energies (FEG)	9	5.0
Module Public Infrastructure (OEI)	12	6.7
Module Project Development (PJE)	10	5.6
<b>Complementary skill:</b>	<b>95</b>	<b>52.8</b>
Module Semester Abroad (ALS)	30	16.6
Module Communication (KMM)	9	5.0
Module Practical Transfer (PXT)	44	24.3
Module Languages (SPR)	12	6.7
<b>Total</b>	<b>180</b>	<b>100</b>

## Applied Engineering Sciences (AIW)

Module number:	Module title:	Scope:
<b>AIW</b>	<b>Applied Engineering Sciences</b>	<b>10 ECTS</b>
Study program	Energy Business	
Position in curriculum	Semester 1 and 2	
Assignment to partial areas	Basic skills	
Level	Semester 1: Introduction, Semester 2: Advanced	
Previous knowledge	Semester 1: None, Semester 2: Fundamentals of Mechanics and Thermodynamics	
Block course	No	
Group of participants	Beginning students	
Contribution to the following modules	MNW, DDM, EEG, FEG	
Literature recommendations	<p>Books:</p> <p><u>*Fundamental of Mechanics and Thermodynamics /ILV /LV no.: V.AIW.01 /Semester: 1 /ECTS: 3</u>            Böge A.; Böge W.: Technische Mechanik, 32. Auflage, Springer Vieweg, 2017            Böge A.; Böge G.; Böge W.: Aufgabensammlung Technische Mechanik, 23. Auflage, Springer Vieweg, 2016            Cerbe G.; Wilhelms G.: Technische Thermodynamik, 17. Auflage, Carl Hanser, 2013</p> <p><u>*Fundamentals of Electrical Engineering /VO /LV no.: V.AIW.02 /Semester: 2 /ECTS: 2</u>            Tkotz K.: Fachkunde Elektrotechnik, 30. Auflage, Europa-Fachbuchreihe, 2016            Hagmann G.: Grundlagen der Elektrotechnik, 17. Auflage, AULA-Verlag, 2017</p> <p><u>*Laboratory Exercise Electrical Engineering /UE /LV no.: V.AIW.03 /Semester: 2 /ECTS: 2</u>            Tkotz K.: Fachkunde Elektrotechnik, 30. Auflage, Europa-Lehrmittel, 2016</p> <p><u>*Thermodynamics and Fluid Dynamics /ILV /LV no.: V.AIW.04 /Semester: 2 /ECTS: 3</u></p>	
Skill acquisition	<p><u>Title of the course:</u></p> <p><u>*Fundamental of Mechanics and Thermodynamics /ILV /LV no.: V.AIW.01 /Semester: 1 /ECTS: 3</u>            Students understand the basic laws of engineering mechanics and thermodynamics and are able to apply these in exercise examples. Students are able to analyze and solve simple technical problems with mathematical methods.</p> <p><u>*Fundamentals of Electrical Engineering /VO /LV no.: V.AIW.02 /Semester: 2 /ECTS: 2</u>            Students are able to interpret electrical-engineering plans and data sheets, identify basic principles of controls and regulations that are the foundation for stability in the electrical-supply network, interpret the parameters of direct, alternating and rotary current and describe the functionality and operating behavior of electrical machines.</p> <p><u>*Laboratory Exercise Electrical Engineering /UE /LV no.: V.AIW.03 /Semester: 2 /ECTS: 2</u>            Students work with laboratory equipment for the simulation of electrical circuitry and are able to operate an oscilloscope. They can question and analyze technical correlations of a delimited task that has been described in detail from the field of electrical engineering and comprehend a solution that has been specified in regard to its structure. Students are able to develop a pointer diagram from measurement values.</p> <p><u>*Thermodynamics and Fluid Dynamics /ILV /LV no.: V.AIW.04 /Semester: 2 /ECTS: 3</u>            Students apply the basic laws of thermodynamics and fluid dynamics to electrical engineering problems. They are, furthermore, capable of comprehending processes related to energy conversion and can calculate key technical figures.</p>	

<b>Title of the course</b>	<b>Fundamentals of Mechanics and Thermodynamics</b>
Scope	3 ECTS
Position in curriculum	Semester 1
Teaching and learning methods	Integrative course
Examination modalities	Written examination, study-accompanying paper
Course content	The most important partial areas of engineering mechanics and an introduction to thermodynamics are conveyed, namely: statics of solid bodies (forces, balance, stability and friction), kinetics (translation and rotation, work and power), strength of materials (traction, pressure, thermal stress, surface pressure, shearing, torsion and bending) and thermodynamics for ideal and real gases (state equation, fundamental theorems).
<b>Title of the course</b>	<b>Fundamentals Electrical Engineering</b>
Scope	2 ECTS
Position in curriculum	Semester 2
Teaching and learning methods	Lecture
Examination modalities	Written examination
Course content	Kirchhoff's laws of network engineering are explained with basic circuitry of direct-current technology and measurement technology. The basic parameters of alternating and rotary current build on these fields and introduce concepts such as reactive, effective and apparent power. The most important semiconductor applications in measurement technology, digital technology and power electronics reference to devices in electrical engineering as they are currently used. Electric machines, motors and generators are described with pointer diagrams. Technical designs as asynchronous and synchronous machines are depicted with their typical usage areas and properties for drive technology and electrical energy production. Structures and properties of control circuits are demonstrated with examples from Energy Business.
<b>Title of the course</b>	<b>Laboratory Exercise Electrical Engineering</b>
Scope	2 ECTS
Position in curriculum	Semester 2
Teaching and learning methods	Exercise
Examination modalities	Presentation, laboratory report
Course content	Students solve electrical engineering tasks with reference to Energy Business based on prescribed tasks and work steps. They build circuits with laboratory equipment for simulation purposes while performing and evaluating measurement series.
<b>Title of the course</b>	<b>Thermodynamics and Fluid Dynamics</b>
Scope	3 ECTS
Position in curriculum	Semester 2
Teaching and learning methods	Integrative course
Examination modalities	Written examination, study-accompanying homework
Course content	Cycle processes of thermodynamics make up the basic principle of many energy-conversion processes as these are systematically introduced and depicted in regard to their energy-engineering application by means of thermal machines. Special significance is assigned to the water-steam cycle. The mechanisms of thermal transfer and their technical usage represent further aspects. The variables and methods of hydrostatics and hydrodynamics are explained in regard to the description of hydroelectric-power plants and applied based on examples.

### Mathematics and Natural Sciences (MNW)

Module number:	Module title:	Scope:
<b>MNW</b>	<b>Mathematics and Natural Sciences</b>	<b>7 ECTS</b>
Study program	Energy Business	
Position in curriculum	Semester 1	
Assignment to partial areas	Basic skills	
Level	Semester 1: Introduction	
Previous knowledge	Semester 1: None	
Block course	No	
Group of participants	Beginning students	
Contribution to the following modules	EEG, FEG, DDM	
Literature recommendations	<p>Books:</p> <p><u>*Chemistry for Energy Business /ILV /LV no.: V.MNW.01 /Semester: 1 /ECTS: 2</u>            Mortimer C. E.; Müller U.: Chemie: Das Basiswissen der Chemie, 12. Auflage, Thieme, 2015            Pohl W. G.; Dostal H.; Jelinek L.: Chemie, 7. Auflage, Trauner Verlag, 2012</p> <p><u>*Physics for Energy Business /ILV /LV no.: V.MNW.02 /Semester: 1 /ECTS: 2</u>            Herr H.; Bach E.; Maier U.: Technische Physik, 5. Auflage, Europa-Lehrmittel, 2011            Tkotz K.: Fachkunde Elektrotechnik, 30. Auflage, Europa-Fachbuchreihe, 2016</p> <p><u>*Mathematics for Energy Business /ILV /LV no.: V.MNW.03 /Semester: 1 /ECTS: 3</u>            Papula L.: Mathematik für Ingenieure und Naturwissenschaftler Band 1, 14. Auflage, Springer Vieweg, 2014            Papula L.: Mathematik für Ingenieure und Naturwissenschaftler, Band 2, 14. Auflage, Springer Vieweg, 2015</p>	
Skill acquisition	<p><u>*Chemistry for Energy Business /ILV /LV no.: V.MNW.01 /Semester: 1 /ECTS: 2</u>            Students have basic knowledge of chemical reactions, balances and electrochemistry. They are able to calculate combustion heat, exhaust gas volumes and storage capacities.</p> <p><u>*Physics for Energy Business /ILV /LV no.: V.MNW.02 /Semester: 1 /ECTS: 2</u>            Students are able to apply fundamental concepts such as force, impulse, power and energy.            They can apply conservation-law methods based on simple examples, identify definitions of electrical variables of electricity, voltage, electric and magnetic fields and relate these to each other based on Ohm's law and electromagnetic induction, qualitatively describe quantum-mechanical processes of charge transport in electric semiconductors and apply these to the photoelectric effect.</p> <p><u>*Mathematics for Energy Business /ILV /LV no.: V.MNW.03 /Semester: 1 /ECTS: 3</u>            Students are able to apply the differential and integral-calculus method. Furthermore, they can explain the structure and solution of simple differential equations based on examples from industry and technology.</p>	
<b>Title of the course</b>	<b>Chemistry for Energy Business</b>	
Scope	2 ECTS	
Position in curriculum	Semester 1	
Teaching and learning methods	Integrative course	
Examination modalities	Written examination, study-accompanying performance	
Course content	Students learn about the material structure and systematics of the periodic system of elements. The elementary types of chemical bonds and stoichiometry of reaction educts and reaction products are conveyed based on this. Further content includes reaction types that are most important for chemical processes in Energy Business as well as elementary combustion calculations and electrochemistry.	

<b>Title of the course</b>	<b>Physics for Energy Business</b>
Scope	2 ECTS
Position in curriculum	Semester 1
Teaching and learning methods	Integrative course
Examination modalities	Written examination, study-accompanying performance
Course content	Building on the comprehensively relevant basic concepts of force, work and energy, the mechanical principles of force balance and energy conservation are explained based on examples. These basic concepts are used to illustrate the definitions of electricity and voltage in electrical science. The electric and magnetic field as well as induction processes are introduced. The theory of electric conductivity in doped electrical semiconductors and the photoelectric effect are explained in a qualitative manner.
<b>Title of the course</b>	<b>Mathematics for Energy Business</b>
Scope	3 ECTS
Position in curriculum	Semester 1
Teaching and learning methods	Integrative course
Examination modalities	Written examination
Course content	Building on elementary methods of algebra, differential and integral calculus is defined and applied based on examples in regard to electrical engineering and Energy Business. Solution methods for multidimensional tasks are presented. The structure and solutions of simple differential equations are demonstrated based on simple examples.



## Economic Sciences (WWS)

Module number:	Module title:	Scope:
<b>WWS</b>	<b>Economic Sciences</b>	<b>8 ECTS</b>
Study program	Energy Business	
Position in curriculum	Semester 1	
Assignment to partial areas	Basic skills	
Level	Semester 1: Introduction	
Previous knowledge	Semester 1: None	
Block course	No	
Group of participants	Beginning students	
Contribution to the following modules	OEI, EEG, FEG	
Literature recommendations	<p>Books:</p> <p><u>*Introduction to Business Administration /ILV /LV no.: V.WWS.01 /Semester: 1 /ECTS: 3</u>            Vahs D.; Schäfer-Kunz J.: Einführung in die Betriebswirtschaftslehre, 7. Auflage, Schäffer-Poeschel-Verlag, 2015            Wöhe G.; Döring U.; Brösel G.: Einführung in die allgemeine Betriebswirtschaftslehre, 26. Auflage, Vahlen Verlag, 2016</p> <p><u>*Introduction to Political Economics /VO /LV no.: V.WWS.02 /Semester: 1 /ECTS: 2</u> Bofinger P.: Grundzüge der Volkswirtschaftslehre: Eine Einführung in die Wissenschaft von Märkten, 4. Auflage, Pearson Studium, 2015            Mankiw G.: Grundzüge der Volkswirtschaftslehre, 6. Auflage, Schäffer-Poeschel Verlag, 2016</p> <p><u>*Introduction to Accounting /ILV /LV no.: V.WWS.03 /Semester: 1 /ECTS: 3</u>            Wagenhofer A.: Bilanzierung und Bilanzanalyse, 12. Auflage, Linde Verlag, 2015            Coenberg A. G.; Fischer T. M.; Günter T.: Kostenrechnung und Kostenanalyse,</p>	
Skill acquisition	<p><u>*Introduction to Business Administration /ILV /LV no.: V.WWS.01 /Semester: 1 /ECTS: 3</u> Graduates are able to identify various business-related partial areas as well as illustrate related problems and solution methods, comprehend and explain relationships between business-related partial areas and apply business-related specialist vocabulary.</p> <p><u>*Introduction to Political Economics /VO /LV no.: V.WWS.02 /Semester: 1 /ECTS: 2</u> Graduates are able to apply and analyze fundamental political-economic tools (e.g. optimization, aggregation, market balance, Pareto efficiency) in order to analyze the decisions of economic subjects in markets. They can also identify and assess the essential elements and functionalities of a political economy.</p> <p><u>*Introduction to Accounting /ILV /LV no.: V.WWS.03 /Semester: 1 /ECTS: 3</u> Graduates are able to identify and apply the fundamentals and concepts of external and internal accounting as well as identify fundamentals and concepts of balance and P/L, create and analyze cost calculations and income statements (full-cost accounting and direct costing) and classify the controlling instruments of planning, reporting and the deviation analysis within the process model of an energy-management company.</p>	

<b>Title of the course</b>	<b>Introduction to Business Administration</b>
Scope	3 ECTS
Position in curriculum	Semester 1
Teaching and learning methods	Integrative course
Examination modalities	Written examination, presentation
Course content	<p>Overview of the correlation analysis of the most important topics/problem areas in business administration. The subject and fundamentals of business administration within the context of economic sciences as well as business administration as a science and delimitation to political economics. Moreover, management science, management and constitutive company decisions (legal forms and location selection) are part of the course content.</p> <p>Other focal points are functional company decisions (fundamentals: procurement, production, sales, accounting and capitalist economy) and business-related management decisions: management and ethics, strategic planning and control, personnel and organization (structural and operational organization).</p>
<b>Title of the course</b>	<b>Introduction to Political Economics</b>
Scope	2 ECTS
Position in curriculum	Semester 1
Teaching and learning methods	Lecture
Examination modalities	Written examination
Course content	<p>Students learn about important macroeconomic concepts such as the fundamentals of supply and demand. Other important variables such as gross domestic product, inflation and unemployment, their measurement, long-term growth and analysis of short-term fluctuations are also part of the course content.</p> <p>An open political economy, markets and prosperity are further topics: consumer and producer surplus, market efficiency, economical-political measures and their impacts – company behavior: production costs, profit maximization, market forms and competition (full competition, monopoly and oligopoly)</p>
<b>Title of the course</b>	<b>Introduction to Accounting</b>
Scope	3 ECTS
Position in curriculum	Semester 1
Teaching and learning methods	Integrative course
Examination modalities	Written examination, study-accompanying performance
Course content	<p>Students learn about basic concepts, tasks and goals of accounting and finance. Emphasis is on the fundamentals of external accounting (balance: tasks, structure and profit and loss statement and the correlation between balance and P/L) and the fundamentals of internal accounting (tasks related to cost accounting, cost-type accounting, cost-center accounting, cost-unit accounting, contribution-margin accounting).</p> <p>The controlling instruments of planning, reporting and the deviation analysis are depicted in their position in the business-related process. Special questions related to financing and controlling are taken up and examined based on the business reports of energy-management companies.</p>

## Law and Energy Policy (REP)

Module number:	Module title:	Scope:
<b>REP</b>	<b>Law and Energy Policy</b>	<b>3 ECTS</b>
Study program	Energy Business	
Position in curriculum	Semester 1 and 2	
Assignment to partial areas	Basic skills	
Level	Semester 1 introduction, Semester 2 consolidation	
Previous knowledge	Semester 1: None, semester 2: Introduction to Law	
Block course	No	
Group of participants	Beginning students	
Contribution to the following modules	OEI, PJE, KMM	
Literature recommendations	Books:  <u>*Introduction to Law /VO /LV no.: V.REP.01 /Semester: 1 /ECTS: 2</u> Larenz C.; Canaris C. W.: Methodenlehre der Rechtswissenschaft, 4. Auflage, Springer Lehrbuch, 2018 Bezemek C.; et al.: Europäisches und öffentliches Wirtschaftsrecht I, 11. Auflage, Verlag Österreich, 2016  <u>*Energy Law and Energy Policy /VO /LV no.: V.REP.02 /Semester: 2 /ECTS: 1</u> Klees A.: Einführung in das Energiewirtschaftsrecht, 1. Auflage, Deutscher Fachverlag, 2012 Ströbele W.; Pfaffenberger W.; Heuterkes M.: Energiewirtschaft: Einführung in Theorie und Politik, 1. Auflage, Oldenbourg Wissenschaftsverlag, 2012	
Skill acquisition	<u>*Introduction to Law /VO /LV no.: V.REP.01 /Semester: 1 /ECTS: 2</u> Graduates are able to depict general civil and private-law aspects of entrepreneurial actions, analyze frequent problem cases from practical experience based on specific case examples, identify goals, positions and players of energy law as well as identify current reform efforts in the field of tension between primary and secondary law.  <u>*Energy Law and Energy Policy /VO /LV no.: V.REP.02 /Semester: 2 /ECTS: 1</u> Graduates are able to assign legislation and regulations at a national and European level to respective bodies and identify economic, social and political impacts of the most important legal rules.	
<b>Title of the course</b>	<b>Introduction to Law</b>	
Scope	2 ECTS	
Position in curriculum	Semester 1	
Teaching and learning methods	Lecture	
Examination modalities	Written examination	
Course content	Students learn about the basic features of public law and the delimitation to private law as well as company and general contract law. The legal capacity and capacity to act of natural persons and legal entities and their legal consequences. Moreover, the fundamentals of European law are conveyed: primary law, secondary law as well as legislative procedures, Electricity Internal-Market Directive and Gas Internal-Market Directive.	

<b>Title of the course</b>	<b>Energy Law and Energy Policy</b>
Scope	1 ECTS
Position in curriculum	Semester 2
Teaching and learning methods	Lecture
Examination modalities	Written examination
Course content	Students become familiar with the European, multilevel governance system, basic features of European energy law and guidelines of European energy policy. In particular the implementation of European directives in national legislation and regulations provides manifold examples for the reciprocal interaction between these structures, which includes energy transformation (promotion of renewable energies), liberalization (antitrust law) and climate protection (CO <sub>2</sub> reduction).

## Digitization and Data Management (DDM)

Module number:	Module title:	Scope:
<b>DDM</b>	<b>Digitization and Data Management</b>	<b>16 ECTS</b>
Study program	Energy Business	
Position in curriculum	Semester 2, 3 and 4	
Assignment to partial areas	Core skills	
Level	Semester 2: Beginners, Semester 3 and 4: Advanced	
Previous knowledge	Semester 2: None, Semester 3: Energy-Efficient Buildings, Internet, Technologies, Semester 4: Introduction of Data Science	
Block course	No	
Group of participants	Students	
Contribution to the following modules	OEI, PJE, KMM	
Literature recommendations	<p>Books:</p> <p><u>*Energy-Efficient Buildings /ILV /LV no.: V.DDM.01 /Semester: 2 /ECTS: 3</u>            Pistohl W.; Scheuerer F.; Rechenauer C.: Handbuch der Gebäudetechnik: Band 2: Heizung/Lüftung/Beleuchtung/Energiesparen, 9. Auflage, Bundesanzeiger Verlag, 2016            Albers K. J.: Recknagel – Taschenbuch für Heizung + Klimatechnik, 78. Ausgabe 17/18, Deutscher Industrieverlag, 2016</p> <p><u>*Internet Technologies /ILV /LV no.: V.DDM.02 /Semester: 2 /ECTS: 3</u>            Baun C.: Computernetze kompakt, 3. Auflage, Springer Vieweg, 2015            Sauter M.: Grundkurs Mobile Kommunikationssysteme: LTE-Advanced, UMTS, HSPA, GSM, GPRS, Wireless LAN und Bluetooth, 6. Auflage, Springer Verlag, 2015            Schreiner R.: Computernetzwerke: Von den Grundlagen zur Funktion und Anwendung, 6. Auflage, Carl Hanser, 2016            Schulte W.: WAN-Wide Area Network – Einführung in die Technik und Protokolle, 1. Auflage, VDE-Verlag, 2014</p> <p><u>*Introduction of Data Science /VO /LV no.: V.DDM.03 /Semester: 3 /ECTS: 2</u>            Grus J.: Einführung in Data Science: Grundprinzipien der Datenanalyse mit Python, 1. Auflage, O'Reilly Media, 2016            Fasel D.; Meier A.: Big Data: Grundlagen, Systeme und Nutzungspotentiale, 1. Auflage, Springer Verlag, 2016            Runkler T.A.: Data Analytics: Models and Algorithms for Intelligent Data Analysis, 2<sup>nd</sup> Edition, Springer Verlag, 2016</p> <p><u>*Energy Audit /ILV /LV no.: V.DDM.04 /Semester: 4 /ECTS: 4</u>            Lisson M.; Düroff P.; Kremer J.: Energieaudits in kleinen und mittleren Unternehmen, 1. Auflage, Weka Media Verlag, 2014            Pöschk J.: Energieeffizienz in Gebäuden 2016: Jahrbuch, 1. Auflage, v m e Verlag und Medienservice Energie, 2016            Blesl M.; Kessler A.: Energieeffizienz in der Industrie, 1. Auflage, Springer Vieweg, 2013            Wosnitza F.; Hilgers H.-G.: Energieeffizienz und Energiemanagement, 1. Auflage, Vieweg+ Teubner Verlag, 2012</p> <p><u>*Data Analysis /UE /LV no.: V.DDM.04 /Semester: 4 /ECTS: 4</u>            2 Grus J.: Einführung in Data Science: Grundprinzipien der Datenanalyse mit Python, 1. Auflage, O'Reilly Media, 2016            Fasel D.; Meier A.: Big Data: Grundlagen, Systeme und Nutzungspotentiale, 1. Auflage, Springer Verlag, 2016            Runkler T.A.: Data Analytics: Models and Algorithms for Intelligent Data Analysis,</p>	

Skill acquisition	<p><u>*Energy-Efficient Buildings /ILV /LV no.: V.DDM.01 /Semester: 2 /ECTS: 3</u> Graduates can identify the most important aspects of energetic building assessments and apply these in exercise examples. They are able to use application tools, assess data in various formats and prepare these by means of graphics software.</p> <p><u>*Internet Technologies /ILV /LV no.: V.DDM.02 /Semester: 2 /ECTS: 3</u> Students are familiar with the properties and performance parameters of various transmission technologies. They are familiar with systems, procedures and protocols and are able to describe data-transmission requirements. Students know the basic concepts for the economic and legal aspects of the Internet infrastructure and population supply.</p> <p><u>*Introduction of Data Science /VO /LV no.: V.DDM.03 /Semester: 3 /ECTS: 2</u> Students are able to describe the content, results/application and modus operandi of data science and translate "questions" into requirements within the context of data science. Students are familiar with the basic functions for processing mass data in Energy Business. They are able to apply the most important evaluation functions based on simple examples. They are also familiar with fundamental program concepts for the evaluation of large data volumes.</p> <p><u>*Energy Audit /ILV /LV no.: V.DDM.04 /Semester: 4 /ECTS: 4</u> Students are able to grasp and assess data and facts for the efficient usage of resources based on a system-oriented approach. They can support an auditing process and provide consultation. They are familiar with the basic qualification criteria for energy auditors.</p> <p><u>*Data Analysis /UE /LV no.: V.DDM.04 /Semester: 4 /ECTS: 4</u> Students are familiar with the structure of mass data in Energy Business. They are also able to use software for the execution and evaluation of data analyses and prepare graphic assessments. They consolidate the energy-management concepts of energy and power.</p>
<b>Title of the course</b>	<b>Energy-Efficient Buildings</b>
Scope	3 ECTS
Position in curriculum	Semester 2
Teaching and learning methods	Integrative course
Examination modalities	Written examination, study-accompanying homework
Course content	Students learn to work with basic concepts of meteorology and structural physics. Energy efficiency and the insulation of the building envelope are classified based on construction and materials methods from which the systematics of the energy passport are extrapolated. The practical implementation of this course content and the handling of various data formats is tested with table calculations and graphics software based on exercises.
<b>Title of the course</b>	<b>Internet Technologies</b>
Scope	3 ECTS
Position in curriculum	Semester 2
Teaching and learning methods	Integrative course
Examination modalities	Written examination, study-accompanying performance
Course content	Students learn the fundamentals of data transmission such as technologies and applications of modern networks and their performance parameters for data transmission: fiber optics (FTTH), mobile radio (UMTS, LTE), broadband power line, Internet nodes, backbone networks, Internet protocol and domain name. Moreover, business models for infrastructure service providers as well as legal preconditions for the provision of infrastructure, data protection and data security are conveyed.

<b>Title of the course</b>	<b>Introduction of Data Science</b>
Scope	2 ECTS
Position in curriculum	Semester 3
Teaching and learning methods	Lecture
Examination modalities	Written examination
Course content	<p>Students learn about the functions of table-calculation software (e.g. Microsoft Excel) and databases for processing large data volumes. The focus is on fundamental methods such as min/max value, mean value, standard deviation, data-compression methods due to temporal scanning and mean-value formation as well as methods for data sorting by means of load profile and assorted duration curve.</p> <p>Moreover, students learn about billing for temporally variable dynamic rates, service-progressive rates as well as the legal preconditions for billing (supplier/network).</p>
<b>Title of the course</b>	<b>Energy Audit</b>
Scope	4 ECTS
Position in curriculum	Semester 4
Teaching and learning methods	Integrative course
Examination modalities	Written examination, paper, presentation
Course content	Students examine the structure, process and form of the energy audit EN ISO 50001 and EN 16247 for selected examples of building-efficiency auditing and auditing for industry and transport processes (transportation).
<b>Title of the course</b>	<b>Data Analysis</b>
Scope	4 ECTS
Position in curriculum	Semester 4
Teaching and learning methods	Exercise
Examination modalities	Presentation, paper
Course content	<ul style="list-style-type: none"> <li>• Introduction to used hardware and software</li> <li>• Acquiring of data series for electrical production and consumption devices</li> <li>• Data preparation by means of software</li> <li>• Graphic illustration of the load profile and assorted duration curve</li> <li>• Creation of the laboratory report and documentation</li> </ul>

## Renewable Energies (EEG)

Module number:	Module title:	Scope:
<b>EEG</b>	<b>Renewable Energies</b>	<b>10 ECTS</b>
Study program	Energy Business	
Position in curriculum	Semester 1, 2 and 3	
Assignment to partial areas	Core skills	
Level	Semester 1: Beginners, Semester 2 and 3: Advanced	
Previous knowledge	Semester 1: None, Semester 2: Resources Renewable Energies, Semester 3: Renewable Heat Generation	
Block course	No	
Group of participants	Beginning students	
Contribution to the following modules	OEI, PJE, KMM, DMM	
Literature recommendations	<p>Books:</p> <p><u>*Resources Renewable Energies /ILV /LV no.: V.EEG.01 /Semester: 1 /ECTS: 2</u> Kaltschmitt M.; Streicher W.; Wiese A.: Erneuerbare Energien: Systemtechnik, Wirtschaftlichkeit, Umweltaspekte, 5. Auflage, Springer-Verlag, 2014 Weischet W.; Endlicher W.: Einführung in die Allgemeine Klimatologie, 8. Auflage, Gebrüder Borntraeger Verlagsbuchhandlung, 2012</p> <p><u>*Renewable Heat Generation /VO /LV no.: V.EEG.02 /Semester: 2 / ECTS: 2</u> Kaltschmitt M.; Streicher W.; Wiese A.: Erneuerbare Energien: Systemtechnik, Wirtschaftlichkeit, Umweltaspekte, 5. Auflage, Springer-Verlag, 2014 Albers K. J.: Recknagel – Taschenbuch für Heizung + Klimatechnik, 78. Ausgabe 17/18, Deutscher Industrieverlag, 2016</p> <p><u>*Regenerative Electricity Production /ILV /LV no.: V.EEG.03 /Semester: 3 /ECTS: 6</u> Kaltschmitt M.; Streicher W.; Wiese A.: Erneuerbare Energien: Systemtechnik, Wirtschaftlichkeit, Umweltaspekte, 5. Auflage, Springer-Verlag, 2014 Quaschnig V.: Regenerative Energiesysteme: Technologie; Berechnung; Simulation, 9. Auflage, Carl Hanser Verlag, 2015 Mertens K.: Photovoltaik: Lehrbuch zu Grundlagen, Technologie und Praxis, 3. Auflage, Hanser Verlag, 2015 Hau E.: Windkraftanlagen, 6. Auflage, Springer Verlag, 2017</p>	
Skill acquisition	<p><u>*Resources Renewable Energies /ILV /LV no.: V.EEG.01/Semester: 1 /ECTS: 2</u> Students are familiar with the resource situation of renewable energy sources or their geographical prevalence and temporal range. They are able to describe the presence of renewable resources with respect to their location and temporal prevalence.</p> <p><u>*Renewable Heat Generation /VO /LV no.: V.EEG.02/Semester: 2 / ECTS: 2</u> Students understand the procedures for using renewable heat and biomass and can classify and assess these with respect to energy. They are able to describe the process schemata of the most important procedures (drying, combustion, gasification, waste-gas purification, solar thermal systems and heat production with thermal pumps.</p> <p><u>*Regenerative Electricity Production /ILV /LV no.: V.EEG.03 /Semester: 3 /ECTS: 6</u> Graduates are able to identify current technologies and developments, the location and supply-dependent behavior and efficiency of renewable electric-energy production and describe these with technical characteristic values. Moreover, they use digital methods for the design and project planning of plants. They are able to explain the structure of national and international development plans for renewable energy production, classify funding systems for renewable energy production and justify the requirements for the system integration of renewable energies in general energy supply.</p>	



<b>Title of the course</b>	<b>Resources Renewable Energies</b>
Scope	2 ECTS
Position in curriculum	Semester 1
Teaching and learning methods	Integrative course
Examination modalities	Written examination, presentation
Course content	The definition and interpretation of basic concepts for describing fossil and regenerative energy sources are explained and discussed. Methods for determining the resource situation are introduced. The analysis of data and facts in regard to availability from a global, national and regional perspective, in particular in Germany and Austria gives students insights into the finiteness of fossil energy sources and the problems of volatile renewable energy resources.
<b>Title of the course</b>	<b>Renewable Heat Generation</b>
Scope	2 ECTS
Position in curriculum	Semester 2
Teaching and learning methods	Lecture
Examination modalities	Written examination
Course content	The structure, functionality and key figures of thermal solar systems for hot water, space heating and commercial applications are explained. The technology of heat pumps explores advantages and disadvantages in a direct comparison. The procedural description of energetic biomass usage of solid fuels, biofuels and biogas as well as deep geothermics complete this topical field.
<b>Title of the course</b>	<b>Regenerative Electricity Production</b>
Scope	6 ECTS
Position in curriculum	Semester 3
Teaching and learning methods	Integrative course
Examination modalities	Written examination, study-accompanying homework
Course content	Factors influencing the production performance of PV systems are derived from the photoelectric effect. System components, location factors and the performance ratio of PV systems convey the most important facts for the description and estimation of the energy yield of PV systems. Framework conditions for the network integration of PV systems are explained and justified. The functionality of various hydropower turbines and the structure of hydropower plants are explained and justified according to various framework conditions and applications. This also includes effects that are critical for operation such as pressure surge, cavitation and erosion. Influences on solar-thermal and geothermal electricity production are demonstrated and estimated quantitatively in regard to the most important designs and concepts. Prognoses are reflected in international, European and national development plans for renewable energies, which are supported by technology-specific economic development promotion. Specific technological properties for renewable energies are interpreted in regard to integration into general energy supply, and derived, generally applicable requirements for network operators are justified.

## Fossil Energies (FEG)

Module number:	Module title:	Scope:
<b>FEG</b>	<b>Fossil Energies</b>	<b>9 ECTS</b>
Study program	Energy Business	
Position in curriculum	Semester 1, 2 and 4	
Assignment to partial areas	Core skills	
Level	Semester 1: Beginners, Semester 2 and 4: Advanced	
Previous knowledge	Semester 1: None, Semester 2: Fossil Energies, Semester 4: Power-Plant Engineering	
Block course	No	
Group of participants	Beginning students	
Contribution to the following modules	OEI, PJE, KMM, DMM	
Literature recommendations	<p>Books:</p> <p><u>*Fossil Energies /VO /LV no.: V.FEG.01 /Semester: 1 /ECTS: 1</u>            Rebhan E.: Energiehandbuch: Gewinnung, Wandlung und Nutzung von Energie, 1. Auflage, Springer Verlag, 2014            Strauß K.: Kraftwerkstechnik: Zur Nutzung fossiler, nuklearer und regenerativer Energiequellen, 7. Auflage, Springer Vieweg Verlag, 2016            Bodansky D.: Nuclear energy: principles, practices, and prospects, Springer Verlag, 2010</p> <p><u>*Power-Plant Engineering /ILV /LV no.: V.FEG.02 /Semester: 2 /ECTS: 6</u>            Konstantin P.: Praxisbuch Energiewirtschaft: Energieumwandlung, -transport und -beschaffung im liberalisierten Markt, 4. Auflage, Springer Verlag, 2017            Schwab A. J.: Elektroenergiesysteme, 4. Auflage, Springer Verlag, 2015            Strauß K.: Kraftwerkstechnik: Zur Nutzung fossiler, nuklearer und regenerativer Energiequellen, 7. Auflage, Springer Vieweg Verlag, 2016            Ziegler A.; Allelein H.-J.: Reaktortechnik: Physikalisch-technische Grundlagen, 2. Auflage, Springer Verlag, 2013            Karl J.: Dezentrale Energiesysteme: Neue Technologien im liberalisierten Energiemarkt, 3. Auflage, Oldenbourg Verlag, 2012</p> <p><u>*Gas Economy /VO /LV no.: V.FEG.03 /Semester: 4 /ECTS: 2</u>            Cerbe G.: Grundlagen der Gastechnik: Gasbeschaffung, Gasverteilung, Gasverwendung, 8. Auflage, Carl Hanser Verlag, 2016            Braun P.: Revolution im deutschen Gasmarkt: Gabi Gas und ihre Auswirkungen auf die Stadtwerke, 1. Auflage, Igel Verlag, 2014</p>	
Skill acquisition	<p><u>*Fossil Energies /VO /LV no.: V.FEG.01 /Semester: 1 /ECTS: 1</u>            Students can identify both technical as well as economic and ecological aspects of fossil energy sources such as petroleum, natural gas, coal and uranium and relate these to energy-management requirements and developments.</p> <p><u>*Power-Plant Engineering /ILV /LV no.: V.FEG.02 /Semester: 2 /ECTS: 6</u>            Graduates are able to identify the structure, functionality and specific advantages and disadvantages of the most important types of centralized and decentralized power plants, read and interpret procedural technical plans in order to discuss specific questions with experts, describe the added-value potential of electricity, heat and cold production by means of key figures and assess these comparatively as well as identify environmental strains and risk.</p> <p><u>*Gas Economy /VO /LV no.: V.FEG.03 /Semester: 4 /ECTS: 2</u>            Graduates are able to identify the technical options and restrictions of gas supply and describe the development and current situation of the European gas economy and gas market and the asset-bound specifics of the gas economy.</p>	

<b>Title of the course</b>	<b>Fossil Energies</b>
Scope	1 ECTS
Position in curriculum	Semester 1
Teaching and learning methods	Lecture
Examination modalities	Written examination
Course content	<p>The course conveys an understanding of global and national flows of fossil energy sources.</p> <ul style="list-style-type: none"> <li>• Basic concepts and fundamentals of fossil energies</li> <li>• Global and national energy demand/energy mix</li> <li>• Energy conversion chain and energy balance</li> <li>• Special concepts and historical developments of fossil energy sources such as coal, petroleum, natural gas and uranium</li> <li>• Extraction, transport, storage and usage</li> </ul>
<b>Title of the course</b>	<b>Power-Plant Engineering</b>
Scope	6 ECTS
Position in curriculum	Semester 2
Teaching and learning methods	Integrative course
Examination modalities	Written examination, study-accompanying performance record
Course content	<p>The most important concepts and fundamentals such as characteristic fuel values, thermodynamic cycles and nuclear fuel cycles including respective power-plant concepts and energy-conversion processes are introduced and applied based on examples. Students familiarize themselves with power-plant concepts: fossil-thermal power plant, nuclear power plant and combined heat and power plant as well as energy conversion processes such as steam power plant, gas turbine, gas motor, chemical energy storage, Stirling engine and fuel cells. <b>The aspects of safety and sustainability in regard to efficiency,</b></p>
<b>Title of the course</b>	<b>Gas Economy</b>
Scope	2 ECTS
Position in curriculum	Semester 4
Teaching and learning methods	Lecture
Examination modalities	Written examination
Course content	<p>The gas market requires a special structure due to exploration risks, high investments in pipeline construction for transport and limited storage possibilities for natural gas, which is clearly delimited from the market structures of other commodities. Students familiarize themselves with the utilized market design and common marketing methods. Aspects of substitution competition and strategic requirements are analyzed. Data and facts for the strategic position of companies in the natural gas market are collected and interpreted against this background.</p>

## Public Infrastructure (OEI)

Module number:	Module title:	Scope:
<b>OEI</b>	<b>Public Infrastructure</b>	<b>12 ECTS</b>
Study program	Energy Business	
Position in curriculum	Semester 1, 3 and 4	
Assignment to partial areas	Core skills	
Level	1. Beginners, Semester 3 and 4: Advanced	
Previous knowledge	Semester 1: None, Semester 3: Introduction to Energy Business, Semester 4: Electrical Power-Supply Networks	
Block course	No	
Group of participants	Beginning students	
Contribution to the following modules	KMM, EEG, FEG, REP	
Literature recommendations	<p>Books:</p> <p><u>*Introduction to Energy Business /VO /LV no.: V.OEI.01 /Semester: 1 /ECTS: 1</u> Konstantin P.: Praxisbuch Energiewirtschaft. Energieumwandlung,-transport und -beschaffung im liberalisierten Markt, 4. Auflage, Springer-Verlag, Berlin, 2017 Silaber A.: Leitfaden zur Verteilnetzplanung und Systemgestaltung – Entwicklung dezentraler Elektrizitätssysteme, 1. Auflage, Springer Vieweg Verlag, 2016 Oeding D.; Oswald B. R.: Elektrische Kraftwerke und Netze, 8. Auflage, Springer Vieweg Verlag, 2017</p> <p><u>*Electrical Supply Networks /VO /LV no.: V.OEI.02 /Semester: 3 /ECTS: 2</u> Flosdorff R.; Hilgarth G.: Elektrische Energieverteilung, 10. Auflage, Vieweg+Teubner Verlag, 2017 Silaber A.: Leitfaden zur Verteilnetzplanung und Systemgestaltung – Entwicklung dezentraler Elektrizitätssysteme, 1. Auflage, Springer Vieweg Verlag, 2016</p> <p><u>*Waste Management /ILV /LV no.: V.OEI.03 /Semester: 4 /ECTS: 3</u> Förster U.: Umweltschutztechnik, 8. Auflage, Springer Verlag, 2012 Bilitewski B.; Härdtle G.: Abfallwirtschaft: Handbuch für Praxis und Lehre, 4. Auflage, Springer-Verlag, 2014 Cord-Landwehr K.: Einführung in die Abfallwirtschaft, 4. Auflage, Vieweg+Teubner Verlag, 2013</p> <p><u>*Energy Trade and Market Mechanisms (E) /ILV /LV no.: V.OEI.04 /Semester: 4 /ECTS: 6</u> Stern J.: The Transition to Hub-Based Gas Pricing in Continental Europe, Oxford Institute of Energy Studies, 2011 Ströbele W.; Pfaffenberger W.; Heuterkes M.: Energiewirtschaft: Einführung in Theorie und Politik, 1. Auflage, Oldenbourg Wissenschaftsverlag; 2012 Zenke I.; et al.: Energiehandel in Europa: Öl, Gas, Strom, Derivate, Zertifikate, 3.</p>	
Skill acquisition	<p><u>*Introduction to Energy Business /VO /LV no.: V.OEI.01 /Semester: 1 /ECTS: 1</u> Students are able to identify basic concepts, market regulations and energy-management developments and classify these within their context, e.g. based on the value chain.</p> <p><u>*Electrical Supply Networks /VO /LV no.: V.OEI.02 /Semester: 3 /ECTS: 2</u> Graduates are able to identify basic features of network planning, network maintenance and network operation, qualitatively and quantitatively describe technical and economic impacts of feed-in and consumption in an electric network for the transmission and distribution of electric energy, identify current development trends and classify these in regard to their application. Graduates are familiar with the basic features of incentive regulations.</p> <p><u>*Waste Management /ILV /LV no.: V.OEI.03 /Semester: 4 /ECTS: 3</u> Graduates are able to identify the legal and technical fundamentals of waste and wastewater management and apply technical-procedural and thermodynamic</p>	

	<p>knowledge and procedures for energetic reciprocal interactions of thermal waste recycling and technical wastewater treatment.</p> <p><u>*Energy Trade and Market Mechanisms (E) /ILV /LV no.: V.OEI.04 /Semester: 4 /ECTS: 6</u></p> <p>Graduates are able to explain the principles of regulated markets and their unbundling from free-trade markets and interpret these in regard to electricity and gas-network regulations, identify the principles of commodity futures trading and describe free-trading energy markets for electricity and gas, interpret the status of European and national energy markets in regard to political development goals, analyze and assess price developments by means of data processing programs with high temporal resolution.</p>
<b>Title of the course</b>	<b>Introduction to Energy Economics</b>
Scope	1 ECTS
Position in curriculum	Semester 1
Teaching and learning methods	Lecture
Examination modalities	Written examination
Course content	<p>Students are given an overview of the most important concepts and principles of European Energy Business within the context of the lecture:</p> <ul style="list-style-type: none"> <li>• Historical development</li> <li>• Network utilization, trade and distribution</li> <li>• Energy conversion, transport and distribution</li> <li>• Prospective challenges</li> </ul>
<b>Title of the course</b>	<b>Electrical Power-Supply Networks</b>
Scope	2 ECTS
Position in curriculum	Semester 3
Teaching and learning methods	Lecture
Examination modalities	Written examination
Course content	<p>The lecture conveys the most essential technical and economic aspects of the transmission and distribution of electrical energy (landline, cable). The tasks of network operators and the function of network regulation (incentive regulation) are explained. Students learn the basic features of network planning, network maintenance and network operation. They apply pointer-diagram methods in order to estimate the impacts of feed-in and consumption on voltage, effective-power and idle-power flow. Elements for network access and network usage as well as current trends are introduced.</p>
<b>Title of the course</b>	<b>Waste Management</b>
Scope	3 ECTS
Position in curriculum	Semester 4
Teaching and learning methods	Integrative course
Examination modalities	Written examination
Course content	<p>The technical and legal fundamentals of waste and wastewater management are conveyed while taking communal aspects into account. Students learn about the procedures of aerobic and anaerobic waste treatment. Material and thermal utilization as well as landfilling including previously existing residual waste are explained in regard to associated environmental impacts. The structure of a wastewater-treatment plant is developed with its mechanical, biological and chemical-physical purification steps and elucidated based on examples.</p>

<b>Title of the course</b>	<b>Energy Trade and Market Mechanisms</b>
Scope	6 ECTS
Position in curriculum	Semester 4
Teaching and learning methods	Integrated course
Examination modalities	Written examination, presentation
Course content	<p>The types of unbundling of natural monopolies and free energy markets are illustrated for the electricity and gas economy in regard to their national and European development. Students become familiar with standardized stock-market products and trade markets. Price developments based on examples from the stock market and online trade are graphically prepared and analyzed by means of database applications that are common in Energy Business. Key figures are determined and interpreted based on examples.</p> <p>Various approaches for energy services, regulated energy services and capacity services in the electricity and gas market are compared with each other. Market players and price-formation mechanisms are explained in various added-value steps as e.g. the transfer pricing system and structured electricity procurement. Data and facts from current statistics of the World Energy Outlook and other sources are collected and interpreted against the background of political development goals. The influence of government interventions in market events by means of funding measures, infrastructure development measures or the restriction of market power of individual energy-management companies are examined based on examples.</p>

### Project Development (PJE)

Module number:	Module title:	Scope:
<b>PJE</b>	<b>Project Development</b>	<b>10 ECTS</b>
Study program	Energy Business	
Position in curriculum	Semester 3 and 4	
Assignment to partial areas	Core skills	
Level	Semester 3 and 4 Advanced	
Previous knowledge	Semester 3 and 4: None	
Block course	No	
Group of participants	Beginning students	
Contribution to the following modules	KMM, EEG, FEG	
Literature recommendations	<p>Books:</p> <p><u>*Investment and Economic-Efficiency Calculation /VO / LV no.: V.PJE.01 /Semester: 3 /ECTS: 3</u>            Olfert K.: Investition, 13. Auflage, Friedrich Kiehl Verlag, 2015            Däumler K. D.; Grabe J.: Grundlagen der Investitions- und Wirtschaftlichkeitsrechnung, 13. Auflage, NWB Verlag, 2014            Hack, M.: Energie Contracting: Energiedienstleistungen und dezentrale Energieversorgung, 3. Auflage, C.H. Beck Verlag, 2015</p> <p><u>*Project Management (E) /ILV /LV no.: V.PJE.02 /Semester: 3 /ECTS: 3</u>            Patzak G.; Rattay G.: Projektmanagement: Leitfaden zum Management von Projekten, Projektportfolios und projektorientierten Unternehmen, 6. Auflage, Linde Verlag, 2014            Sterrer C.; Winkler G.: Setting Milestones: Projektmanagement Methoden - Prozesse – Hilfsmittel, 2. Auflage, Goldegg Verlag, 2010            Lester A.: Project Management, Planning and Control: Managing Engineering, Construction and Manufacturing Projects to PMI, APM and BSI Standards, 1st Edition, Butterworth-Heinemann, 2013            Dinsmore P.; Cabanis-Brewin J.: The AMA Handbook of Project Management, 4th Edition, Mcgraw-Hill Education Ltd Verlag, 2014</p> <p><u>*Innovation in Energy Business (E) /SE /LV-no: V.PJE.03 /Semester: 4 /ECTS: 4</u>            Rogers E.: Diffusion of Innovations Simon &amp; Schuster International, 5th Edition,</p>	
Skill acquisition	<p><u>*Investment and Economic-Efficiency Calculation /VO / LV no.: V.PJE.01 /Semester: 3 /ECTS: 3</u>            Students apply business-related key profitability figures in order to prepare and justify investment decisions for projects and other alternative economic decision-making processes. They are familiar with company assessment procedures and options for contract design with various types of contracting between provider and customer. They use digital methods for the execution of profitability assessments.</p> <p><u>*Project Management (E) /ILV /LV no.: V.PJE.02 /Semester: 3 /ECTS: 3</u>            Graduates are able to execute a project based on systematic project management, are familiar with concepts of systematic, technically proper and on-schedule project processing, the special roles within a project, the importance of project communication in all directions (discussions, documentations, descriptions, presentations) and apply project-management and text-processing software such as MS Project and MS Word.</p> <p><u>*Innovation in Energy Business (E) /SE /LV no.: V.PJE.03 /Semester: 4 /ECTS: 4</u>            Graduates are familiar with a model for describing technical innovation processes. They apply concepts for the description of innovation-process phases to various developments in Energy Business and justify the maturity degree of products and technologies. They identify the most important technological trends in Energy Business and describe various examples for innovative energy services that are currently being developed within the industry sector.</p>	

<b>Title of the course</b>	<b>Investment and Economic-Efficiency Calculation</b>
Scope	3 ECTS
Position in curriculum	Semester 3
Teaching and learning methods	Lecture
Examination modalities	Written examination
Course content	<p>The preparation and justification of an investment decision in the entrepreneurial environment is described as a process for which the following procedures and methods apply. Static and dynamic procedures for the investment calculation allow for a rational assessment of calculable investment aspects. They quantify financial investment consequences and solidify these in various key profitability figures of the economic-efficiency calculation as a basis for investment decisions. They utilize digital methods for the execution of economic-efficiency calculations.</p> <p>Scenario analyses and sensitivity analyses allow for the assessment of risks. This is firstly applied in investment case examples in production and distribution network areas as well as for sales and customer projects. Company assessment and investment in company shareholding represent a second application for key profitability figures. The depiction of contracting from the viewpoint of the provider and customer provides a third application for key profitability figures as students are introduced to the topic of contract design for various contracting models between provider and customer.</p>
<b>Title of the course</b>	<b>Project Management</b>
Scope	3 ECTS
Position in curriculum	Semester 3
Teaching and learning methods	Integrative course
Examination modalities	Presentation, paper
Course content	<p>Students learn about practical application after the fundamental definition of project-management functions. Especially the tasks of the project manager as well as further roles in project teams and the most important project-management tools and methods are discussed. The course content includes both the project concept and project types as well as service planning, target agreements for team members, resource and cost planning, project organization, IT-supported project documentation, project manuals and target achievement.</p>
<b>Title of the course</b>	<b>Innovation in Energy Business</b>
Scope	4 ECTS
Position in curriculum	Semester 4
Teaching and learning methods	Seminar
Examination modalities	Written examination, presentation
Course content	<p>Students are introduced to a phase model that describes the proliferation of technical innovation. Based on examples, data and facts of current examples in Energy Business are collected and classified according to the phase model. These examples are orientated towards the value chain of Energy Business, namely production, transfer, distribution and consumption and thus provide a broad overview of current trends and developments.</p> <p>Digitization in Energy Business in the areas of smart grids, smart metering and smart home is analyzed from a technological perspective in regard to stakeholder benefit.</p> <p>Typical new developments in the energy market are analyzed, discussed and classified.</p>



### Semester Abroad (ALS)

Module number:	Module title:	Scope:
<b>ALS</b>	<b>Semester abroad</b>	<b>30 ECTS</b>
Study program	Energy Business	
Position in curriculum	Semester 5	
Assignment to partial areas	Complementary Skills	
Level	Semester 5: Advanced	
Previous knowledge	Semester 5: Foreign Language I, II and III	
Block course	No	
Group of participants	Students	
Contribution to the following modules	None	
Literature recommendations	<p>Books:</p> <p><u>*Selected Topics Energy Business /ILV /LV no.: V.ALS.01 /Semester: 5 /ECTS: 18</u> Konstantin P.: Praxisbuch Energiewirtschaft. Energieumwandlung, -transport und - beschaffung im liberalisierten Markt, 4. Auflage, Springer-Verlag, Berlin, 2017</p> <p><u>*Selected Topics Social Competences /ILV /LV no.: V.ALS.02 /Semester: 5 /ECTS: 6</u> Rosenberg M.; Holler I.: Gewaltfreie Kommunikation: Eine Sprache des Lebens, 12. Auflage, Junfermann Verlag, 2016 Schulz von Thun F.: Miteinander reden 1: Störungen und Klärungen: Allgemeine Psychologie der Kommunikation, 48. Auflage, Rowohlt Taschenbuch Verlag, 2010 Knapp P.: Konflikte lösen in Teams und großen Gruppen: Klärende und deeskalierende Methoden für die Mediations- und Konfliktmanagement-Praxis im Business, 2. Auflage, managerSeminare Verlag, 2014</p> <p><u>*Selected Topics Area Studies and Languages /ILV /LV no.: V.ALS.03 /Semester: 5 /ECTS: 6</u> Bathelt H.; Glückler J.: Wirtschaftsgeographie: Ökonomische Beziehungen in räumlicher Perspektive, 3. Auflage, UTB GmbH Verlag, 2012</p>	
Skill acquisition	<p><u>*Selected Topics Energy Business /ILV /LV no.: V.ALS.01 /Semester: 5 /ECTS:</u> Exemplary illustration of a possible course combination for TURKU University of Applied Sciences, Finland:</p> <p>1) Ecological Assessment of Products and Services, 5 ECTS Students know how to compare the ecology of products and services and use different analyses and methods in planning and decision-making. They recognize the environmental impacts of products and services and learn about eco-efficiency and different</p> <p>2) New Fuels and Drive Systems for Vehicles, 5 ECTS Students know detailed information about different emission components and their effects. They can explain the main reasons for global warming and climate change and why alternative fuels and drive systems are being explored. In addition, they are familiar with new fuels like alcohols (methanol, ethanol), gaseous fuels (LPG, CNG, biogas), biodiesel and hydrogen, new drive systems, innovations in conventional engine technology, hybrid and electric drives and fuel cells.</p> <p>3) Global Supply Chain Management, 5 ECTS After completing the course, students can explain the overall picture of the whole logistics chain in business and describe the importance of efficient purchasing and material control, transportation, distribution and logistics services relevant to the competitiveness of modern companies in the global supply chain. Moreover, students are able to design a supply-chain network, plan and calculate location decisions as well as prepare and optimize distribution models. In addition, students are able to manage and improve supply-chain performance.</p> <p>4) Logistics and Quality, 5 ECTS</p>	

	<p>The course covers issues related to the concept of quality, quality systems and their relation to logistics processes. The contents include general facts about quality, quality awareness, product and process quality, quality measurement systems, ISO 9000 series, responsibilities, quality manuals, audits and case examples.</p> <p><u>*Selected Topics Social Competences /ILV /LV no.: V.ALS.02 /Semester: 5 /ECTS:</u> Exemplary illustration of a possible course combination for TURKU University of Applied Sciences, Finland:</p> <p>1) Responsible Business Management, 5 ECTS The goal of this course is to provide participants with the current tools and instruments for managing world-class companies. For far too long business has concentrated on the profit mandate while disregarding issues such as the environment and the sustainable future of consumers. In this course, we are going to demonstrate that good business ethics make good business sense. The world has witnessed thousands of liquidations, bankruptcies, mergers, alliances, and partnerships. Corporate scandals highlight the need for improved business ethics and corporate disclosure of financial transactions. The challenges and opportunities facing organizations of all sizes today are greater than ever.</p> <p>2) Business Game, 3 ECTS Students improve their teamwork skills and understanding of business activities. The goal of the Business Game is to improve the students' managerial, decision-making and teamwork skills. The Business Game provides a case example, simulation and in-depth knowledge of different company operations – knowledge that can be transferred to real-life situations as well as to different types of business sectors and clusters. Typically, the Business Game provides students with a wonderful and different learning opportunity as it simulates the "big picture" within the company environment where many different skills and all previously learned information must be put into practice. It teaches entrepreneurial skills, project-working skills and provides practical tools for today's business world.</p> <p><u>*Selected Topics Area Studies and Languages /ILV /LV no.: V.ALS.03 /Semester: 5 /ECTS: 6</u> Exemplary illustration of a possible course combination for TURKU University of Applied Sciences, Finland:</p> <p>1) Finnish for Exchange Students, 3 ECTS Students understand the basic structures of the Finnish language and are able to cope in everyday situations. Basic grammar, everyday situations, Finnish culture.</p> <p>2) Get Finternational, 3 ECTS For Finnish and international students alike. The goal for international students is to gain a wider perspective of Finnish society, increase active participation, analyze adjustments to a foreign culture and interact with representatives from different</p>
<b>Title of the course</b>	<b>Selected Topics Energy Business</b>
Scope	18 ECTS
Position in curriculum	Semester 5
Teaching and learning methods	Determined by the partner university
Examination modalities	Determined by the partner university
Course content	<p>A generally valid description of course content for the semester abroad cannot and should not be defined due to the multitude of partner universities and elective options in order to preserve the students' freedom of choice. Exemplary course content is described in the following. ECTS or national credits are indicated. Students are subject to respective examination modalities at the partner university.</p>

<b>Title of the course</b>	<b>Selected Topics Social Competences</b>
Scope	6 ECTS
Position in curriculum	Semester 5
Teaching and learning methods	Determined by the partner university
Examination modalities	Determined by the partner university
Course content	A generally valid description of course content for the semester abroad cannot and should not be defined due to the multitude of partner universities and elective options in order to preserve the students' freedom of choice. Exemplary course content is described in the following. ECTS or national credits are indicated. Students are subject to the respective examination modalities at the partner university.
<b>Title of the course</b>	<b>Selected Topics Area Studies and Languages</b>
Scope	6 ECTS
Position in curriculum	Semester 5
Teaching and learning methods	Determined by the partner university
Examination modalities	Determined by the partner university
Course content	A generally valid description of course content for the semester abroad cannot and should not be defined due to the multitude of partner universities and elective options in order to preserve the students' freedom of choice. Exemplary course content is described in the following. ECTS or national credits are indicated. Students are subject to the respective examination modalities at the partner university.

## Communication (KMM)

Module number:	Module title:	Scope:
<b>KMM</b>	<b>Communication</b>	<b>9 ECTS</b>
Study program	Energy Business	
Position in curriculum	Semester 1, 2 and 4	
Assignment to partial areas	Complementary Skills	
Level	Beginners Semester 1, 2 and 4	
Previous knowledge	Semester 1, 2 and 4: None	
Block course	No	
Group of participants	Beginning students	
Contribution to the following modules	None	
Literature recommendations	<p>Books:</p> <p><u>*Teamwork and Communication (E) /SE /LV no.: V.KMM.01 /Semester: 1 /ECTS: 2</u>            Birkenbihl V. F.: Kommunikationstraining: Zwischenmenschliche Beziehungen erfolgreich gestalten, 1. Auflage, mvg Verlag, 2013</p> <p><u>*Presentation Skills (E) /UE /LV no.: V.KMM.02 /Semester: 2 /ECTS: 2</u>            Dall M.: Sicher präsentieren - wirksamer vortragen, 1. Auflage, Redline Verlag, 2014            Garten M.: Präsentationen erfolgreich gestalten und halten: Wie Sie mit starker Wirkung präsentieren, 2. Auflage, GABAL Verlag, 2013</p> <p><u>*Academic Writing /SE /LV no.: V.KMM.03 /Semester: 2 /ECTS: 2</u>            Niederhauser J.: Die schriftliche Arbeit kompakt, 2. Auflage, Bibliographisches Institut Verlag, 2015            Theisen M. R.; Theisen M.: Wissenschaftliches Arbeiten: Erfolgreich bei Bachelor- und Masterarbeit, 16. Auflage, Vahlen Verlag, 2013            Wiltche H. A.: Einführung in die Wissenschaftstheorie, UTB GmbH Verlag, 2013            Umberto E.: Wie man eine wissenschaftliche Abschlussarbeit schreibt, 13. Auflage, UTB GmbH Verlag, 2010            Karmasin M.; Ribing R.: Die Gestaltung wissenschaftlicher Arbeiten, 9. Auflage, UTB GmbH Verlag, 2017            Leopold-Wildburger U.; Schütze J.: Verfassen und Vortragen: Wissenschaftliche Arbeiten und Vorträge leicht gemacht, 2. Auflage, Springer Verlag, 2010</p> <p><u>*Marketing (E) /ILV /LV no.: V.KMM.04 /Semester: 4 /ECTS: 3</u>            Köhler-Schulte C.: Wettbewerbsorientierter Vertrieb in der Energiewirtschaft: Kundenverlustprävention, neue Geschäftsfelder und Produkte, optimierte Geschäftsprozesse, KS-Energy-Verlag, 2. Auflage, 2011            Ströbele, W., Pfaffenberger W., Heuterkes M.: Energiewirtschaft: Einführung in Theorie und Politik, 1. Auflage, Oldenbourg Wissenschaftsverlag, 2012</p>	
Skill acquisition	<p><u>*Teamwork and Communication (E) /SE /LV no.: V.KMM.01 /Semester: 1 /ECTS: 2</u>            Graduates are able to Identify basic concepts of communicative processes and consciously apply content and relational aspects of human communication. Moreover, they can moderate communicative processes within the team as well as detect and analyze problems in team communication. They develop and apply solution strategies based on this.            Students understand principles of work-life balance with the perspective for future employment.</p> <p><u>*Presentation Skills (E) /UE /LV-no: V.KMM.02 /Semester: 2 /ECTS: 2</u>            Students are able to Prepare and execute presentations as well as utilize required technologies and media in a targeted manner. They are familiar with the reciprocity of voice and pronunciation, appearance and body language, eye contact, facial expressions and gestures and apply these in a targeted manner.            They are also able to detect risks in presentations and implement possible solutions.</p> <p><u>*Academic Writing /SE /LV no.: V.KMM.03 /Semester: 2 /ECTS: 2</u></p>	

	<p>Graduates are able to formulate research questions in an appropriate manner and methodically plan the procedure for answering these. They are able to research, assess and cite specialist literature.</p> <p>Students can write an academic paper of medium complexity and comprehensible scope while taking the bachelor thesis guidelines of FH-Kufstein into account. Moreover, they can create tables and illustrations and integrate these into the thesis.</p> <p><u>*Marketing (E) /ILV /LV no.: V.KMM.04 /Semester: 4 /ECTS: 3</u></p> <p>Graduates can recognize market-oriented company management and identify solution approaches and problem areas of marketing management for commodities, electricity products and energy services.</p> <p>They can apply marketing-mix instruments and identify fundamental methods of market research. They know basic sales concepts.</p>
<b>Title of the course</b>	<b>Teamwork and Communication</b>
Scope	2 ECTS
Position in curriculum	Semester 1
Teaching and learning methods	Seminar
Examination modalities	Presentation
Course content	<p>Students learn about the importance of communication and its concepts as well as about communication forms and models.</p> <p>Moreover, the course emphasizes on interaction and interaction forms as well as non-verbal communication.</p> <p>Students additionally learn about group and teamwork with associated team factors, processes and roles.</p> <p>Further focal points include work-life balance, i.e. the relationship between work and leisure time and the student's personal outlook for the future.</p>
<b>Title of the course</b>	<b>Presentation Skills</b>
Scope	2 ECTS
Position in curriculum	Semester 2
Teaching and learning methods	Exercise
Examination modalities	Presentation
Course content	<p>Students learn about the structure, content and form of presentations. Essential elements include preparation (targets, target groups/audience/viewers, material volume, language, introduction, main part, conclusion), execution (greeting, introduction, rules e.g. in regard to questions), presentation, language, gestures, facial expressions, body posture) and media (software-supported presentation, whiteboard/blackboard, flip chart, media mix).</p>
<b>Title of the course</b>	<b>Academic Writing</b>
Scope	2 ECTS
Position in curriculum	Semester 2
Teaching and learning methods	Seminar
Examination modalities	Study-accompanying performance (paper)
Course content	<p>Introductory courses for academic writing especially focus on conveying an understanding of the peculiarities, rules and basic features of science and academic writing.</p> <p>Students learn how to independently write seminar papers and bachelor theses at an academic level. This preparation focuses on literature and discussions regarding the quality of academic writing.</p> <p>Especially the terms of intellectual integrity and intersubjective transparency are important in this regard.</p> <p>Moreover, the lecture also includes formal aspects such as the creation of tables and illustrations with text-processing programs.</p>

Title of the course	Marketing
Scope	3 ECTS
Position in curriculum	Semester 4
Teaching and learning methods	Integrative course
Examination modalities	Presentation
Course content	<p>Students learn about the importance of marketing and its tasks against the background of the liberalization of the energy business in the 21<sup>st</sup> century. This includes the methods of strategic marketing, market research in regard to consumer behavior and the marketing mix.</p> <p>Reflecting on marketing differences in regard to investment goods, consumable goods, commodities, electricity products and services merits special attention. Electricity identifiers, contracting and smart metering are examples of current marketing topics.</p>

### Practical Transfer (PXT)

Module number:	Module title:	Scope:
<b>PXT</b>	<b>Practical Transfer</b>	<b>44 ECTS</b>
Study program	Energy Business	
Position in curriculum	Semester 3, 4 and 6	
Assignment to partial areas	Complementary Skills	
Level	Semester 3, 4 and 6: Advanced/Consolidation	
Previous knowledge	Semester 3: Academic Writing, Project Management, Semester 4 Practical Project I, Semester 6: Bachelor Thesis Seminar I	
Block course	No	
Group of participants	Students	
Contribution to the following modules	KMM	
Literature recommendations	<p>Books:</p> <p><u>*Bachelor Thesis Seminar I /SE /LV no.: V.PXT.01 /Semester: 3 /ECTS: 6</u>            Niederhauser J.: Die schriftliche Arbeit kompakt, 2. Auflage, Bibliographisches Institut Verlag, 2015            Theisen M. R.; Theisen M.: Wissenschaftliches Arbeiten: Erfolgreich bei Bachelor- und Masterarbeit, 16. Auflage, Vahlen Verlag, 2013            Wiltche H. A.: Einführung in die Wissenschaftstheorie, UTB GmbH Verlag, 2013            Umberto E.: Wie man eine wissenschaftliche Abschlussarbeit schreibt, 13. Auflage, UTB GmbH Verlag, 2010            Karmasin M.; Ribing R.: Die Gestaltung wissenschaftlicher Arbeiten, 9. Auflage, UTB GmbH Verlag, 2017            Leopold-Wildburger U.; Schütze J.: Verfassen und Vortragen: Wissenschaftliche Arbeiten und Vorträge leicht gemacht, 2. Auflage, Springer Verlag, 2010</p> <p><u>*Bachelor Thesis Seminar II /SE /LV no.: V.PXT.04 /Semester: 6 /ECTS: 8</u>            Niederhauser J.: Die schriftliche Arbeit kompakt, 2. Auflage, Bibliographisches Institut Verlag, 2015            Theisen M. R.; Theisen M.: Wissenschaftliches Arbeiten: Erfolgreich bei Bachelor- und Masterarbeit, 16. Auflage, Vahlen Verlag, 2013            Wiltche H. A.: Einführung in die Wissenschaftstheorie, UTB GmbH Verlag, 2013            Umberto E.: Wie man eine wissenschaftliche Abschlussarbeit schreibt, 13. Auflage, UTB GmbH Verlag, 2010            Karmasin M.; Ribing R.: Die Gestaltung wissenschaftlicher Arbeiten, 9. Auflage, UTB GmbH Verlag, 2017            Leopold-Wildburger U.; Schütze J.: Verfassen und Vortragen: Wissenschaftliche Arbeiten und Vorträge leicht gemacht, 2. Auflage, Springer Verlag, 2010</p> <p><u>*Practical Project I /PT /LV no.: V.PXT.02 /Semester: 3 /ECTS: 4</u>            Schaumann G.; Schmitz K. W.: Kraft-Wärme-Kopplung, 4. Auflage, Springer Verlag, 2010            Grote K. H.; Feldhusen J.: Dubbel - Taschenbuch für Maschinenbau, 24. Auflage, Springer Verlag, 2014</p> <p><u>*Practical Project II /PT /LV no.: V.PXT.03 /Semester: 4 /ECTS: 4</u>            Jakoby W.: Projektmanagement für Ingenieure: Ein praxisnahes Lehrbuch für den systematischen Projekterfolg, 2. Auflage, Springer Vieweg, 2013            Jakoby W.: Intensivtraining Projektmanagement: Ein praxisnahes Übungsbuch für den gezielten Kompetenzaufbau, 1. Auflage, Springer Vieweg Verlag, 2015</p> <p><u>*Internship /SE /LV no.: V.PXT.05 /Semester: 6 /ECTS: 22</u>            Brenner D.: Karrierestart nach dem Studium – inkl. Arbeitshilfen online: Die ersten 100 Tage im neuen Job, 1. Auflage, Haufe Lexware Verlag, 2015</p>	

Skill acquisition	<p><u>*Bachelor Thesis Seminar I /SE /LV no.: V.PXT.01 /Semester: 3 /ECTS: 6</u>          Graduates are able to scientifically prepare a topic from the subject field of          Scientifically assess Energy Business and develop a central question independently. Students develop self-organization and time-management skills.</p> <p><u>*Bachelor Thesis Seminar II /SE /LV no.: V.PXT.04 /Semester: 6 /ECTS: 8</u>          Graduates are able to independently stake out a topic from the subject field of Energy Business, prepare it scientifically and develop a self-formulated research question. They are able to develop and execute a method for this research question and derive a result.</p> <p><u>*Practical Project I /PT /LV no.: V.PXT.02 /Semester: 3 /ECTS: 4</u>          Graduates are able to execute a project with systematic project management. They are confident in systematic, technically proper and on-schedule project processing.          They are familiar with the special roles within the project and the meaning of project communication in all directions (discussions, documentations, descriptions, presentations) and know how to act accordingly.          They have specialist knowledge in solving specific problems, apply investment-calculation methods and justify decisions based on technological knowledge.</p> <p><u>*Practical Project II /PT /LV no.: V.PXT.03 /Semester: 4 /ECTS: 4</u>          Graduates are able to professionally execute a project based on solid organization. They are confident in systematic, structured, technically professional and on-schedule project processing. They are confident in project communication in all directions (discussions, documentation, descriptions, presentations), have consolidated expertise for solving specific problems and are able to assess and defend their results towards the customer.</p> <p><u>*Internship /SE /LV no.: V.PXT.05 /Semester: 6 /ECTS: 22</u>          Graduates are able to apply their gained knowledge in real-life practice. They understand procedures in the work environment and can solve problems and implement solutions within the context of real-life projects (practical skill).          Moreover, they are able to further develop arguments, problem solutions and strategies independently (problem-solving skill). They can consolidate, further develop and implement knowledge relating to communicating with superiors, employees and colleagues in a beneficial manner (social skill).</p>
<b>Title of the course</b>	<b>Bachelor Thesis Seminar I</b>
Scope	6 ECTS
Position in curriculum	Semester 3
Teaching and learning methods	Seminar
Examination modalities	Written bachelor thesis
Course content	Students report regularly about the progress of their first bachelor thesis as an accompaniment to Bachelor Thesis 1. Students receive instructions and templates for the creation of their first bachelor thesis and thus accompanying scientific supervision.
<b>Title of the course</b>	<b>Bachelor Thesis Seminar II</b>
Scope	8 ECTS
Position in curriculum	Semester 6
Teaching and learning methods	Seminar
Examination modalities	Written bachelor thesis
Course content	Students report regularly on the progress of their second bachelor thesis as an accompaniment to Bachelor Thesis 2. Students receive instructions and templates for the creation of their second bachelor thesis and thus accompanying scientific supervision. Specific information for the examination before the examination board is also included.



<b>Title of the course</b>	<b>Practical Project I</b>
Scope	4 ECTS
Position in curriculum	Semester 3
Teaching and learning methods	Seminar
Examination modalities	Project report, presentation
Course content	<p>Practically relevant tasks, preferably based on tasks from industry partners or public institutions are processed in groups or students gain field experience under guidance from course management in order to be optimally prepared for problems in work life. Students contribute their previously gained knowledge and compare it with observations and experiences within the context of the practical project. Complementary skills such as social competence, risk management, budgeting and economically responsible decision-making are solidified while students consolidate and improve subject-specific skills. Students independently work on introduced projects based on the task briefing (by course management or external partners such as associations and companies), receiving only guidance from course management when needed. Students are responsible for planning, coordination, budgeting, checking, evaluation and final reporting. Course management is focused on project coaching.</p>
<b>Title of the course</b>	<b>Practical Project II</b>
Scope	4 ECTS
Position in curriculum	Semester 4
Teaching and learning methods	Seminar
Examination modalities	Written final examination, study-accompanying performance certificate (presentation, project plan)
Course content	<p>Based on the experience gained in Practical Project I as well as other knowledge and skills gained in courses, students are afforded the opportunity to apply their gained knowledge in real projects – especially skills in project and quality management as well as subject-specific problem-solving skills are to be solidified and applied. Problems from study-program areas are to be processed within the context of projects in cooperation with companies and other institutions. Planning, execution and evaluation of projects are performed independently. The project team is trained based on individual target agreements with the lecturer. Students themselves implement quality management in order to promote decision-making skills.</p>
<b>Title of the course</b>	<b>Internship</b>
Scope	22 ECTS
Position in curriculum	Semester 6
Teaching and learning methods	Internship
Examination modalities	Formless assessment of the internship placement (intermediary report, final report, presentation, evaluation), internship placement
Course content	<p>Complement to the students' theoretical knowledge in the form of practical activities and legal-economical questions from practice. Minimum of 550 work hours. Employment at an external company with full employment. The internship ensures that students are able to find their way when they enter work life and gain confidence due to previous experiences in implementing gained knowledge. Procedures, workflows and situations in the work environment are to be experienced and understood. Student accompaniment in the internship: communication and reflection of opportunities and challenges.</p>

### Languages (SPR)

Module number:	Module title:	Scope:
SPR	Languages	12 ECTS
Study program	Energy Business	
Position in curriculum	Semester 1, 2 and 3	
Assignment to partial areas	Complementary Skills	
Level	B2 or C1 (CEFR)	
Previous knowledge	Module with target B2: Prerequisite level B1 (CEFR) Module with target C1: Prerequisite level	
Block course	No	
Group of participants	Students in Semester 1, 2 & 3: EEW (full-time), WEB (full-time), WING (full-time), UF (full-time), IBS (part-time), SKVM (full-time & pt), MKM (pt) Students in semester 1, 2 & 5 FMI (full-time & pt);	
Contribution to the following modules	KMM, ALS, connection to English-language courses	
Literature recommendations	<p><b>Books (selection):</b></p> <p><b>B2.1</b> Course book – as agreed upon, Mascull, B. 2010. <i>Business Vocabulary in Use Intermediate</i>. 2<sup>nd</sup> ed. Cambridge: Cambridge University Press. Emerson, P. 2010. <i>Business Grammar Builder</i>. 2<sup>nd</sup> ed. Oxford: Macmillan. Foley, M. and Hall, D. 2012. <i>MyGrammarLab Intermediate B1/B2</i>. Harlow: Pearson. Authentic material such as English-language magazines (also specialist journals), newspapers and websites</p> <p><b>B2.2</b> Course book – as agreed upon, Mascull, B. 2010. <i>Business Vocabulary in Use Intermediate</i>. 2<sup>nd</sup> ed. Cambridge: Cambridge University Press. Emerson, P. 2010. <i>Business Grammar Builder</i>. 2<sup>nd</sup> ed. Oxford: Macmillan. Foley, M. and Hall, D. 2012. <i>MyGrammarLab Intermediate B1/B2</i>. Harlow: Pearson. Authentic material such as English-language magazines (also specialist journals), newspapers and websites</p> <p><b>B2.3</b> Course book – as agreed upon, Mascull, B. 2010. <i>Business Vocabulary in Use Intermediate</i>. 2<sup>nd</sup> ed. Cambridge: Cambridge University Press. Emerson, P. 2010. <i>Business Grammar Builder</i>. 2<sup>nd</sup> ed. Oxford: Macmillan. Foley, M. and Hall, D. 2012. <i>MyGrammarLab Intermediate B1/B2</i>. Harlow: Pearson. Authentic material such as English-language magazines (also specialist journals), newspapers and websites</p> <p><b>C1.1</b> Course book – as agreed upon, Emmerson, P. 2007. <i>Business English Handbook Advanced</i>. Oxford: Macmillan. Mascull, B. 2010. <i>Business Vocabulary in Use Advanced</i>. 2<sup>nd</sup> ed. Cambridge: Cambridge University Press. Mascull, B. 2010. <i>Business Vocabulary in Use Intermediate</i>. 2<sup>nd</sup> ed. Cambridge: Cambridge University Press. Hewings, M. 2013. <i>Advanced Grammar in Use</i>. 3<sup>rd</sup> ed. Cambridge: Cambridge University Press. Foley, M. and Hall, D. 2012. <i>MyGrammarLab Advanced C1/C2</i>. Harlow: Pearson. Authentic material such as English-language magazines (also specialist journals), newspapers and websites</p> <p><b>C1.2</b> Course book – as agreed upon, Emmerson, P. 2007. <i>Business English Handbook Advanced</i>. Oxford: Macmillan.</p>	

	<p>Mascull, B. 2010. <i>Business Vocabulary in Use Advanced</i>. 2<sup>nd</sup> ed. Cambridge: Cambridge University Press.</p> <p>Mascull, B. 2010. <i>Business Vocabulary in Use Intermediate</i>. 2<sup>nd</sup> ed. Cambridge: Cambridge University Press.</p> <p>Hewings, M. 2013. <i>Advanced Grammar in Use</i>. 3<sup>rd</sup> ed. Cambridge: Cambridge University Press.</p> <p>Foley, M. and Hall, D. 2012. <i>MyGrammarLab Advanced C1/C2</i>. Harlow: Pearson. Authentic material such as English-language magazines (also specialist journals), newspapers and websites</p> <p><b>C1.3</b> Course book – as agreed upon,</p> <p>Emmerson, P. 2007. <i>Business English Handbook Advanced</i>. Oxford: Macmillian.</p> <p>Mascull, B. 2010. <i>Business Vocabulary in Use Advanced</i>. 2<sup>nd</sup> ed. Cambridge: Cambridge University Press.</p> <p>Mascull, B. 2010. <i>Business Vocabulary in Use Intermediate</i>. 2<sup>nd</sup> ed. Cambridge: Cambridge University Press.</p> <p>Hewings, M. 2013. <i>Advanced Grammar in Use</i>. 3<sup>rd</sup> ed. Cambridge: Cambridge University Press.</p> <p>Foley, M. and Hall, D. 2012. <i>MyGrammarLab Advanced C1/C2</i>. Harlow: Pearson. Authentic material such as English-language magazines (also specialist journals), newspapers and websites</p>
Skill acquisition	<p><b>Groups with target B2:</b> Within the context of this course, students acquire language skills and develop abilities at level B2 (CEFR) that are required for economically-oriented employment. With respect to level B2, students are able to understand the main content of complex texts on tangible and abstract topics as well as expert discussions in their own specialist field and communicate in a spontaneous and fluent manner so that conversations with native speakers are possible without much effort from both sides. Students can express themselves clearly in a detailed manner on a broad spectrum of topics, explain a viewpoint relating to current questions and state various advantageous and disadvantageous possibilities.</p> <p>The following skills are acquired in the three courses that constitute the module:</p> <p><b>Business English B2.1</b> Within the context of this course, students apply language skills and abilities at level B1 and develop fundamental economically-oriented language skills and abilities.</p> <p><b>Business English B2.2</b> Within the context of this course, students consolidate and learn language skills and abilities at level B2, apply these language skills and abilities in more complex, economically-oriented language situations and expand their economically-oriented vocabulary and knowledge.</p> <p><b>Business English B2.3</b> Within the context of this course, students acquire language skills and abilities that CEFR envisages for level B2 and learn to professionally and successfully apply these in economical fields.</p> <p><b>Groups with target C1:</b> Within the context of this course, students acquire language skills and develop abilities at level C1 (CEFR) that are required for economically-oriented employment in the international environment. In regard to level C1, they can understand a broad spectrum of demanding, longer texts and grasp implicit meanings as well as express themselves spontaneously and fluently without always having to search for words in a noticeable manner.</p>

	<p>Students are able to effectively and flexibly use language in social, professional and academic life and express themselves clearly in a structured and detailed manner on complex topics while properly applying various means of text referencing.</p> <p>The following skills are acquired in the three courses that constitute the module:</p> <p><b>Business English C1.1</b> Within the context of this course, students solidify language skills and abilities at level B2, establish the basis for level C1 and develop fundamental economically-oriented language skills and abilities.</p> <p><b>Business English C1.2</b> Within the context of this course, students consolidate and learn language skills and abilities at level C1, apply these in more complex economically-oriented language situations and expand their economically-oriented vocabulary and knowledge.</p> <p><b>Business English C1.3</b> Within the context of this course, students acquire language skills and abilities that CEFR envisages for level C1 and are able to apply these professionally and successfully in economical fields.</p>
<b>Title of the course</b>	<b>Business English B2.1</b> <b>Business English C1.1</b>
Scope	4 ECTS
Position in curriculum	Semester 1
Teaching and learning methods	ILV designed according to the communicative, action-oriented approach
Examination modalities	<p><b>Groups with target B2:</b> 20% participation and intermediary test, 10% listening comprehension, 10% reading comprehension, 10% oral expression, 50% written final exam (grammar, vocabulary and written production)</p> <p><b>Groups with target C1:</b> The performance of students for partial examinations (reading comprehension, listening comprehension, written expression, oral expression) and participation are</p>
Course content	<p><b>Groups with target B2:</b> Within the context of this course, students repeat and build on the language skills and abilities of level B1 in order to develop language skills envisaged by CEFR for level B2. A connection to work-related language requirements, which graduates of the study program possess is ensured by introducing vocabulary and topics from business English and developing fundamental, economically-oriented language skills and abilities.</p> <p><b>Groups with target C1:</b> Within the context of this course, students repeat and build on the language skills and abilities of level B2 in order to develop language skills envisaged by CEFR for level C1. A connection to work-related language requirements, which graduates of the study program possess is ensured by introducing vocabulary and topics from business English and developing fundamental, economically-oriented language skills and abilities.</p>

<b>Title of the course</b>	<b>Business English B2.2</b> <b>Business English C1.2</b>										
Scope	4 ECTS										
Position in curriculum	Semester 2										
Teaching and learning methods	ILV designed according to the communicative, action-oriented approach										
Examination modalities	<p><b>Groups with target B2:</b> 20% participation and intermediary test, 10% listening comprehension, 10% reading comprehension, 10% oral expression, 50% written final exam (grammar, vocabulary and written production)</p> <p><b>Groups with target C1:</b> The performance of students for partial examinations (reading comprehension, listening comprehension, written expression, oral expression) and participation are</p>										
Course content	<p><b>Groups with target B2:</b> Within the context of this course, students build on language skills and knowledge acquired in the previous semester in order to further develop language skills at level B2 and apply these in more complex, economically-oriented written and oral language situations. Students expand their business vocabulary and knowledge in regard to relevant economic topics.</p> <p><b>Groups with target C1:</b> Within the context of this course, students build on language skills and knowledge acquired in the previous semester in order to further develop language skills at level C1 and apply these in more complex, economically-oriented written and oral language situations. Students expand their business vocabulary and knowledge in regard to relevant economic topics.</p>										
<b>Title of the course</b>	<b>Business English B2.3</b> <b>Business English C1.3</b>										
Scope	4 ECTS										
Position in curriculum	Semester 3										
Teaching and learning methods	ILV designed according to the communicative, action-oriented approach										
Examination modalities	<p><b>Groups with target B2:</b> 15% participation and intermediary test, 15% listening comprehension, 15% reading comprehension, 15% oral expression, 40% written final exam (grammar, vocabulary and written production) while adhering to the following examination durations:</p> <table border="1"> <thead> <tr> <th>CEFR level</th> <th>Reading comprehension</th> <th>Written expression</th> <th>Listening</th> <th>Oral expression</th> </tr> </thead> <tbody> <tr> <td>B2</td> <td>60 minutes</td> <td>60 minutes</td> <td>15 minutes</td> <td>15 minutes</td> </tr> </tbody> </table> <p><b>Groups with target C1:</b> The performance of students for partial examinations (reading comprehension, listening comprehension, written expression, oral expression) and participation are</p>	CEFR level	Reading comprehension	Written expression	Listening	Oral expression	B2	60 minutes	60 minutes	15 minutes	15 minutes
CEFR level	Reading comprehension	Written expression	Listening	Oral expression							
B2	60 minutes	60 minutes	15 minutes	15 minutes							

Course content	<p><b>Groups with target B2:</b> Within the context of this course, students solidify their general and economically-oriented language skills and knowledge in order to achieve level B2 and successfully and professionally apply this skill in economical fields.</p> <p><b>Groups with target C1:</b> Within the context of this course, students solidify their general and economically-oriented language skills and knowledge in order to achieve level C1 and successfully and professionally apply this skill in economical fields. Further details in regard to course content are stated in the syllabus on Moodle.</p>
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## 2.4 Internship

Students independently choose an internship position. They can rely on extensive internship offers from the job exchange at the University of Applied Sciences Kufstein. The Director of Studies checks the subject-specific agreement of internship activities with study content and qualification profiles of the study program. The Director of Studies subsequently checks whether the internship fulfills the training targets of the study program and whether students can be employed at their qualification level. The IRO takes over organizational processing once these requirements are met. A detailed Guide for Internships supports students in organizing their practical semester. The IRO and the Director of Studies are also available if students have any further questions or require additional support.

Students must submit the form sheet for the internship application (= job description). The form sheet contains central data regarding the student and internship supervision as well as targets and tasks/activities within the internship company. The internship is confirmed and approved with signatures from the Director of Studies and the internship supervisor.

Students must reflect on, document and present their gained experiences and insights and evaluate the internship position. In turn, practicum supervision must evaluate the student. Students must prepare an intermediary report, a final report and a presentation as well as fill out an evaluation form. They receive a Guide for Internships in which process points are listed. A central requirement is comparing agreed-upon targets with actually achieved targets. The Director of Studies evaluates the documentation prepared by the student and supervisor. The respective internship position is excluded prospectively if the achievement of targets and the adjustment to the student's qualification level are not ensured. Other students can view the list and reports on internship placements via the teaching platform Moodle.

## 2.5 Semester abroad

Since its founding, the University of Applied Sciences Kufstein has envisaged a compulsory semester abroad for all bachelor study programs with a full-time organizational form. The requirement to spend a semester abroad and complete a one-semester internship abroad or at an internationally operating company are a fixed part of the curriculum. This necessarily results in increased mobility requirements for students. The influx of foreign students associated with the exchange program and joint course attendance at FH Kufstein Tirol promotes integration and strengthens multiculturalism at the university.

Students are continuously supervised during the semester abroad. The International Relations Office (IRO) provides students with all information related to the semester abroad and responds to any questions and concerns regarding the exchange. Arrangements are made in agreement with the Director of Studies (STGL).



Key: IRO = International Relations Office, Stud. = Student, STGL = Director of Studies; P.HS = Partner university

### 3 ADMISSION CRITERIA

Admission criteria at FH Kufstein Tirol are regulated according to the following provisions:

1. General admission criteria are regulated by Section 4 of the University of Applied Sciences Act (FHG) in the valid version and apply to persons with general university entrance qualification.
2. Persons without a school-leaving certificate must perform a university entrance examination according to Section 64 of the University Act in the valid version. These persons acquire the general university entrance qualification for bachelor studies within a study-field group by passing the university entrance examination according to the regulation of the president's office of the university. The successful completion of the university entrance examination gives the prospective student access to all study programs within the study-group field for which the qualification was achieved. According to a regulation of the president's office, the university entrance examination can be achieved for specific study-field groups whereby FH Kufstein is relevant for the following study-field group: Social and Economics Science Studies (e.g. Business Economics, Business Education, Statistics, Sociology).



Applicants who have completed a 3-year vocational middle school, the dual education system or achieved a subject-specific German entrance qualification for universities of applied sciences gain admission to the study program at FH Kufstein Tirol by completing additional examinations in the subjects German, English and Mathematics. An additional examination must only be performed in the three subjects in which the report card grade was "poor" or lower in case of a German entrance qualification for universities of applied sciences. All additional examinations must be successfully completed prior to the beginning of the third semester.

3. Qualifications in one of the following subject fields represent admission criteria for persons with relevant dual education according to the valid issuance by the Federal Ministry of Economy, Family and Youth.

- Construction and Building Service
- Office, Administration, Organization
- Chemistry and Plastics
- Electrical Engineering, Electronics
- Metal Technology and Mechanical Engineering
- Paper Generation, Paper Processing, Printing
- Transport and Storage
- Information and Communication Technologies
- Trade

4. Persons who have completed one of the following vocational middle schools with a minimum duration of three years can be admitted:

- Business schools
- Commercial, technical and art universities of applied sciences
- Universities of applied sciences for economic professions
- Universities of applied sciences for agricultural and forestry professions
- Trade schools

Newly created teaching professions in similar subject fields are to be recognized accordingly. The group of people under item 3. and 4. must perform additional examinations by the beginning of the third semester as criteria for admission and participate in preparatory seminars if necessary. Students can perform these requirements at FH Kufstein.

The following additional examinations are required for these persons:

- German
- English
- Mathematics

### **3.1.1 Regulations for transfers to the new study program**

The transfer of a student from the current study program "European Energy Business", accredited on May 9, 2012 to the new study program "Energy Business", commencement of studies from the academic year 2018/19 can only occur within the context of repeating an academic year. Item 1.5 of the General Study and Examination Regulations (cf. annex A5, page 7) applies. The Director of Studies recognizes courses according to individual cases while taking skill targets and course content into account.