Study and examination regulations for the international continuing education master's program in Energy Management (EM) at TU-Campus EUREF of the Technische Universität Berlin

October 31, 2016

On October 31, 2016, the TU-Campus EUREF Joint Decision-Making Committee of the Technische Universität Berlin adopted the following study and examination regulations for the continuing education master's program in Energy Management in accordance with section 18, paragraph 1, item 1 of the *Grundordnung der Technischen Universität Berlin* (TU Berlin University Charter), and with section 71, paragraph 1, item 1 of the *Gesetz über die Hochschulen im Land Berlin* (act governing higher education institutions in the state of Berlin - BerlHG) in the version of July 26, 2011 (Berlin law gazette - GVBl., p. 378), last amended by article 4 of the act of May 9, 2016 (GVBl. p. 226).**)

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I. General regulations

1-Scope of application

These study and examination regulations set out the aims, structure, and requirements and arrangements of examinations in the international continuing education master's program in Energy Management. They supplement the *Ordnung zur Regelung des allgemeinen Studien- und Prüfungsverfahrens der Technischen Universität Berlin* (the University's regulations governing general study and examination procedures - AllgStuPo) with program-specific provisions.

2 – Entry into force

- (1) These regulations take effect on the day after their publication and apply to students enrolling from the 2017/18 winter semester onwards.
- (2) The study and examination regulations for the international continuing education master's program in Energy Management of January 23, 2015 (TU official gazette 15/2015 p. 119) will no longer apply once the present study and examination regulations take effect.
- (3) In addition to the students mentioned in paragraph 1, these study and examination regulations apply to all students that are already enrolled on the master's program in Energy Management.

II. Program aims and structure

3. Program aims, content and areas of professional activity

(1) The students in the program acquire the knowledge, skills and competencies needed to work as a manager in the energy sector under changing socio-economic conditions.

The knowledge they acquire includes, but is not limited to: The technical principles of energy generation, distribution and use; the economic, environmental and social context; the legal frameworks, in particular in the fields of competition and regulatory law; organization, planning, implementation and control of management tasks; leadership; the fundamentals of accounting, investment planning, financing, account balancing, and innovation management; familiarity with leading companies and research institutes in the energy sector.

The competencies they acquire include, but are not limited to: applying knowledge gained on the program to concrete tasks; independent use of new media and information technology; public relations; interpersonal and cross-cultural dialogue and discussion skills; managing social networks; and independently applying the methods and technologies needed.

(2) Graduates of this program will be able to take on responsibility in leadership positions in the energy sector. These include, but are

not limited to: Energy utilities, energy service providers, energy-intensive companies, regulatory authorities, consumer and environmental associations, consultancies, energy technology companies, specialized investment firms and the mobility and transport sector. Graduates will be able to evaluate investments and technologies, design and implement plans, select and steer organizational forms, anticipate, plan and shape changes, evaluate results, determine and communicate actions and research to be performed. They will be able to accomplish these tasks independently and in teams, in networks and in society.

**) Approved by the TU Berlin Executive Board on January 23, 2017.

4 - Program start date, standard duration, and number of credits

- (1) The program starts in the winter semester.
- (2) The standard duration is three semesters including completion of the master's thesis.
- (3) The program is worth 90 credits.
- (4) The teaching curriculum and all examination procedures are structured so that students can complete the program within the standard duration.

5 - Program structure

- (1) Students are able to structure their studies individually. However, they are required to comply with the provisions of these study and examination regulations. The recommended module pathway is shown in the sample program schedule in Annex II.
- (2) However, content-related admission requirements for modules shown in the schedule apply.
- (3) Students earn a total of 90 credits; 72 for taught modules and 18 for the master's thesis.
- (4) The entire program is run only in English. It comprises lectures and seminars, e-learning components, self-study, practical components such as excursions and visits, individual work such as reports and papers, and group work.
- (5) Students take compulsory modules worth a total of 62 credits, and compulsory elective modules worth 10 credits. The modules assigned to the different fields can be found in the module list (Annex 1).

III. Requirements and conduct of examinations

6 - Aim of the master's examination

The master's examination determines whether a candidate has achieved the qualification aims in accordance with section 3 of these regulations.

7 - Master's qualification

Students who have passed the master's examination are awarded the academic title master of business administration (MBA) by the Technische Universität Berlin through the Joint Decision-Making Committee (GKmE).

8 - Contents of the master's examination; calculation of the overall grade

- (1) The master's examination comprises the module examinations listed in the module list (Annex 1) and the master's thesis as explained in section 9.
- (2) The overall grade is determined in accordance with the principles outlined in section 47 of AllgStuPO. It is based on a) the module examinations that are graded and form part of the overall grade according to the module list, and b) the grade of the master's thesis.

9 - Master's thesis

- (1) The master's thesis is usually completed in the third semester. It is worth a total of 18 credits and amounts to 18 weeks' work. If there is an important reason, and it is beyond the student's control, the examination committee can grant an extension of up to one month, and in cases of illness up to three months.
- (2) To be admitted to complete a master's thesis, students must submit evidence of having successfully completed module examinations worth at least 62 credits to the responsible office.
- (3) The topic of the master's thesis may be rejected once, but only within the first four weeks after it has been issued by the responsible office.
- (4) The procedure for applying for admission to work on final dissertations and the procedure for evaluating them are set down in AllgStuPO as amended.
- (5) The master's thesis must be written in English. It is approx. 50 pages in length.
- (6) People with experience of professional activity and training can be appointed as examiners of final dissertations. It is generally more important that second examiners meet this criterion.

10 - Types of examination and examination registration

Types of examination and the procedure for registering for module examinations are set down in AllgStuPO as amended. In addition, the following types of examination form are offered: term paper, business simulation.

10a - Term paper and business simulation

(1) The term paper is a written assignment through which students demonstrate their ability to produce a piece of academic work on a specific aspect of the module subject and place it in the context of the module. Further details are outlined in the module description.

(2) A business simulation is a piece of oral work in the form of a corporate strategic planning tool. Further details are outlined in the module description.

IV.Annexes

- Annex 1: Module list
- Annex 2: Sample program schedule
- Annex 3: Module descriptions

Annex 1: Module list

Module	Credits	Type of examination	Graded	Weighting in overall grade ¹
Compulsory modules				
Technical Fundamentals	6	Written (examination)	Yes	1
Economics Fundamentals	6	Written (examination)	Yes	1
Business Fundamentals	10	Business simulation	No	-
Energy Law	10	Written (term paper)	Yes	1
Energy Grids	10	Written (examination)	Yes	1
Management	10	Portfolio	Yes	1
Investments	10	Written (examination)	Yes	1
Compulsory elective modules				
Specialist management: Efficiency Management	10	Portfolio	No	-
Specialist management: Innovation Management	10	Portfolio	No	-
Master's thesis	18			1
Total	90			

¹ A weighting of 1 means that the grade is weighted according to the number of credits (section 47, paragraph 6 of AllgStuPo); "-" means the grade won't be weighted; all other figures are multiplied by the number of credits.

Annex 2: Sample program schedule

Winter	semester	Summer semester	Winter	semester
Technological Fundamentals, 6 credits	Economics Fundamentals, 6 credits	Energy Grids, 10 credits	Compulsory elective module: Efficiency Management, 10 credits	Compulsory elective module: Technology and Innovation Management, 10 credits
Business Fun	damentals, 10 credits	Management, 10 credits	Mastar's	thesis 18 credits
Energy la	aw, 10 credits	Investments, 10 credits	waster s	lifesis, 16 credits
ECTS to	tal: 32 credits	ECTS total: 30 credits	ECTS tota	al: 28 credits

Technological Fundamentals
Economics Fundamentals
Business Fundamentals
Energy Law
Energy Grids
Management
Investments
Efficiency Management
Technology and Innovation Management

Module title:	ECTS cred	its: S	hort title:		
Technological	6	E	M — Tech	nology	
Fundamentals					
Responsible for the module:	Secretary:	Ε	mail:		
Prof. DrIng. Joachim	Jan Suchane	ek <u>su</u>	chanek@	campus.tu-be	rlin.de
Muller- Kirchenbauer		• .•			
	Module desci	ription			
1. Module aims					
This module revisits and broader the context of today's changing v are taught to apply this knowledg The module primarily develops t	ns students' knowl world, preparing the independently to the following communication	edge of en ne ground to selected o petencies (1	ergy techi for the con cases. put a cross	nologies and s ning modules	systems in 5. Students
relevant competence or write in p	percentages):		put u eross	next to the	
Subject-specific competence [60] Social competence [0]	Methodological	competenc	e [10] Sys	tems compete	ence [30]
2. Content					
Energy physics and energy techn Carnot engines and cycles; fossil technologies; recent global and le electrical engineering, grids; tran	ologies; thermody fuels and renewal ocal developments sitions and trends.	namics, m ble energy ; storage a	echanics, o sources; c nd transpo	chemical proc onversion ort technologie	cesses; es;
3. Module components					
Course title	Course type	Hrs/week	ECTS credits:	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Energy and Energy Markets	Integr. course	0.5			
Power Grids	Integr. course	0.5			
Fossil Fuels	Integr. course	0.5			
Renewable Energy Sources	Integr. course	0.5	6	C	ws
EM – Technology	Tutorial	1	Ŭ	Ũ	
EM – Technology	eLearning	3			
Case Studies and Company Program	Integr. course	1			
4. Description of course types					
Integrated courses in the form of excursions	seminar-style lect	ures, eLea	rning cour	se, tutorial an	ıd

Module can be taken in following programs		
ntinuing advantion master's in Energy Manage		
nunuing education master's in Energy Manage	ement at TU-Campus E	UREF (TU Berlin)
Work load and credits		
ours per week of integr. courses (in-person)	4 x 8 h	32h
our per week of tutorial (in-person)	2 x 8 h	16 h
ours per week of eLearning	6 x 8 h	48h
our per week of case dies and company	15 h	15 h
paration and follow-up		51.5 h
amination and preparation for exam (1 test)	1.5 h & 16 h	17.5h
is amounts to a workload of 180 hours per sen dits.	nester, which is equival	ent to 6
Module examination and grading		
There will be one assessed test (written; dur Students who fail the test may repeat it at th Addule duration	ation 90 mins) at the each beginning of the follo	nd of the module. owing semester.
e module can be completed in one semester. It	comprises approx. 3-4	weeks.
Number of participants	1 11	
aximum number of participants: 30		
Registration formalities		
dents can register for the eLearning course, th	e tutorial and the test v	ia TUBS.
Reading list and lecture notes		
cture notes available in hard copy: No		
es, where can the lecture notes be purchased?		
cture notes available in electronic format: Yes		
ves, give internet page: On the Moodle platform	m for the program:	
ps://www.isis.tu-berlin.de/2.0/		
ading list:		

Module title:	ECTS credits:	Short title:
Economics Fundamentals	6	EM – Economics
Responsible for the module:	Secretary:	Email:
Prof. Dr. Georg Erdmann	Jan Suchanek	suchanek@campus.tu-berlin.de
N	Iodule description	

1. Module aims

The master's in Energy Management aims to develop the following skills in the students:

This module provides students with core knowledge of economics in the field of energy and provides a grounding in the economics behind the coming modules. Students are taught to apply this knowledge independently to selected cases.

The module primarily develops the following competencies (put a cross next to the relevant competence or write in percentages): Subject-specific competence [60] Methodological competence [20] Systems competence [20] Social competence [0]

2. Content

Welfare analysis, prices and markets, market forms, production and pricing decisions, natural resource economics, merit order effects, external effects, trading in allowances, fundamentals of investment decisions, market failures and regulation, sustainability, global commons, security of supply.

3. Module components					
Course title	Course type	Hrs/week	ECTS credits:	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Welfare, Prices and Markets	Integr. course	0.5			
Introduction to Business Administration	Integr. course	0.5			
Resource Economics, Security of Supply I	Integr. course	0.5			
Resource Economics, Security of Supply II	Integr. course	0.5	6	С	WS
EM – Economics	Tutorial	1			
EM – Economics	eLearning course	3			
Case Studies and Company Program	Integr. course	1			

4. Description of course types Integrated courses in the form of seminar-style lectures, eLearning course and tutorial 5. Participation requirements Enrolled on the continuing education master's in Energy Management at TU Berlin (1st sem.) 6. Module can be taken in following programs Continuing education master's in Energy Management at TU-Campus EUREF (TU Berlin) 7. Work load and credits 2 hours per week of integr. courses (in-person) 4 x 8 h 32 h 1 hour per week of tutorial (in-person) $2 \times 8 h$ 16 h 3 hours per week of eLearning 6 x 8 h 48h 1 hour per week of case studies and 15 h 15 h company program Preparation and follow-up 51.5 h Examination and preparation for exam (1 test) 1.5 h & 16 h 17.5 h This amounts to a workload of 180 hours per semester, which is equivalent to 6 credits. 8. Module examination and grading Type of examination: written exam There will be one assessed test (written: duration 60 mins) at the end of the module. Students who fail the test may repeat it at the beginning of the following semester. 9. Module duration The module can be completed in one semester. It comprises approx. 3-4 weeks. 10. Number of participants

Maximum number of participants: 30

11. Registration formalities

Students can register for the eLearning course, the tutorial and the test via TUBS.

12. Reading list and lecture notes

Lecture notes available in hard copy: No

Lecture notes available in electronic format: Yes

If yes, give internet page: On the Moodle platform

for the program: https://www.isis.tu-berlin.de/2.0/

The reading list is provided on the eLearning course on Moodle.

Module title:	ECTS credits:	Short title:
Business Fundamentals	10	EM – Business
Responsible for the module:	Secretary:	Email:
Prof. Dr. Dodo zu	Jan Suchanek	suchanek@campus.tu-berlin.de
Knyphausen-Aufseß		-
N	Aodule description	

1. Module aims

The master's in Energy Management aims to develop the following skills in the students:

In this module, students learn the fundamentals of strategic management and the basic tools and applications used in the energy sector. Students are taught to apply this knowledge independently to selected cases.

The module **primarily** develops the following competencies (put a cross next to **the relevant** competence or write in percentages): Subject-specific competence [50] Methodological competence [20] Systems competence [20] Social competence [10]

2. Content

Fundamentals of management and business administration; management and leadership; shareholder and stakeholder value approach; the concept of strategy; Porter's Five Forces, SWOT analysis, etc.; strategic business units; industry analysis; generic strategies; vertical integration; portfolio analysis; diversification; strategy process; case studies

3. Module components					
Course title	Course type	Hrs/we ek	ECTS credits:	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Management in the Energy Sector	Integr. course	0.5			
Strategy, Organization, Leadership I	Integr. course	0.5			
Strategy, Organization, Leadership II	Integr. course	0.5			
Strategy, Organization, Leadership III	Integr. course	0.5	10	С	WS
Regulation, Industry & Company Analysis I	Integr. course	0.5			
Regulation, Industry & Company Analysis II	Integr. course	0.5			
EM – Business Fundamentals	Tutorial	1.5			
EM – Business Fundamentals	eLearning course	4			
Case Studies and Company Program	Integr. course	1			

4. Description of course types

Integrated courses in the form of seminar-style lectures, eLearning course and tutorial

5. Participation requirements

Enrolled on the continuing education master's in Energy Management at TU Berlin (1st sem.)

6. Module can be taken in following programs

Continuing education master's in Energy Management at TU-Campus EUREF (TU Berlin)

7. Work load and credits

3 hours per week of integr. courses (in-person)	6 x 8 h	48h
1.5 hour per week of tutorial (in-person)	3 x 8 h	24 h
4 hours per week of eLearning	8 x 8 h	64 h
Case Studies and Company Program	15 h	15 h
Preparation and follow-up		123 h
Examination and preparation for exam (business sim.)	8 h & 8 h	16 h
This amounts to a monthland of 200 hours non a		1

This amounts to a workload of 300 hours per semester, which is equivalent to 10 credits.

8. Module examination and grading

Type of examination: Portfolio. There is an ungraded business simulation (oral, duration: 8 h) at the end of the module. This involves a student presentation and subsequent write-up. 50 points are awarded for the presentation and 50 for the write-up. Students need 51 points to attain a pass.

Students who do not take part may repeat at the beginning of the following semester by taking an ungraded exam (written, duration: 2 h).

9. Module duration

The module can be completed in one semester. It comprises approx. 4-5 weeks.

10. Number of participants

Maximum number of participants: 30

11. Registration formalities

Students can register for the eLearning course, the tutorial and the examination via TUBS.

12. Reading list and lecture notes

Lecture notes available in hard copy: No

Lecture notes available in electronic format: Yes

If yes, give internet page: On the Moodle platform for the program:

https://www.isis.tu-berlin.de/2.0/

The reading list is provided on the eLearning course on Moodle.

Module title:	ECTS cred	its: S	hort title:		
Energy Law	10	Е	M – Energ	gy Law	
Responsible for the module:	Secretary:	Е	mail:		
Prof. Dr. Dr. Dres. h.c. Franz	Jan Suchane	k S	uchanek@u	ampus tu-be	din de
Jürgen Säcker	Juli Suchaite		ienunek e v	Jumpus.tu oo	<u>inn.de</u>
	Module descu	ription			
1. Module aims					
The master's in Energy Managem students:	ent aims to develo	op the follo	owing skill	s in the	
This module presents the legal fr Students learn to independently e	amework of today valuate cases and	/'s global, summariz	EU and G e legal situ	erman energy ations.	markets.
The module primarily develops th relevant competence or write in pe Subject-specific competence [60] Social competence [0]	e following comp ercentages): Methodological c	etencies (p	ut a cross e [20] Sysi	next to the ems compete	nce [20]
2. Content					
Energy law, energy trade and inte law, EFET contracts; the legal sys <i>Energiewende</i> and EEG; EU secc state aid.	ernational contract stem of the EU an ondary law v. regio	s; UN con d the Thir onal develo	ventions, V d Energy F opments, e	WTO, ECT, c Package; Gerr nvironmental	ontract nany's law,
3. Module components					
Course title	Course type	Hrs/week	ECTS credits:	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Introduction to European Union (Energy) Law	Integr. course	0.5			
Energy Policy, European Law and	Integr. course	0.5			
Business Practice					
Infrastructure Regulation	Integr. course	0.5			
EU Competition Law for the	Integr. course	0.5	10	С	WS
Energy Law in Practice	Integr course	0.5			
The EU Legal Framework for	integri course	0.5			
Energy Wholesale & Trading					
EM – Energy Law	Tutorial	1.5	1		
EM – Energy Law	eLearning course	4	1		
Case Studies and Company	Integr course	1	1		
Program	integr. course	1			

······································		
Integrated courses in the form of seminar-style le	ectures, eLearning cours	se and tutorial
5. Participation requirements		
Enrolled on the continuing education master's in	Energy Management at	TU Berlin (1st sem
6. Module can be taken in following programs	S	
Continuing education master's in Energy Manag	ement at TU-Campus E	UREF (TU Berlin)
7. Work load and credits		
3 hours per week of integr. courses (in-person)	6 x 8 h	48 h
1.5 hour per week of tutorial (in-person)	3 x 8 h	24 h
4 hours per week of eLearning	8 x 8 h	64 h
1 hour per week of case studies and company program	15 h	15 h
Preparation and follow-up		93 h
Examination and preparation for	40 h & 16 h	56 h
This amounts to a workload of 300 hours per ser	mester, which is equivale	ent to 10 credits.
r · · · ·	···· , ··· <u>1</u>	
8. Module examination and grading		
Type of examination: graded written exam		
- One term paper (written, 10 pages, 1 week) Students who fail the paper may repeat it a) will be set at the end of	the module.
- Students who fail the paper may repeat it a	t the beginning of the fo	nowing semester.
0 Madula duration		
9. Module duration	t	
 9. Module duration The module can be completed in one semester. I 10. Number of participants 	t comprises approx. 4-5	weeks.
 9. Module duration The module can be completed in one semester. I 10. Number of participants 	t comprises approx. 4-5	weeks.
 9. Module duration The module can be completed in one semester. I 10. Number of participants Maximum number of participants: 30 	t comprises approx. 4-5	weeks.
 9. Module duration The module can be completed in one semester. I 10. Number of participants Maximum number of participants: 30 11. Registration formalities 	t comprises approx. 4-5	weeks.
 9. Module duration The module can be completed in one semester. I 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course, the second secon	t comprises approx. 4-5	weeks.
 9. Module duration The module can be completed in one semester. I 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course, the second secon	t comprises approx. 4-5	weeks.
 9. Module duration The module can be completed in one semester. I 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course, th 12. Reading list and lecture notes Lecture notes available in hard copy: No 	t comprises approx. 4-5	weeks.
 9. Module duration The module can be completed in one semester. I 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course, th 12. Reading list and lecture notes Lecture notes available in hard copy: No Lecture notes available in electronic format: Yes 	t comprises approx. 4-5	weeks.
 9. Module duration The module can be completed in one semester. I 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course, the second secon	t comprises approx. 4-5	weeks.
 9. Module duration The module can be completed in one semester. I 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course, th 12. Reading list and lecture notes Lecture notes available in hard copy: No Lecture notes available in electronic format: Yes If yes, give internet page: On the Moodle platfor https://www.isis.tu-berlin.de/2.0/ 	t comprises approx. 4-5	weeks.

Module title:	ECTS credits:	Short title:
Energy Grids	10	EM – Energy grids
Responsible for the module:	Secretary:	Email:
Prof. Dr. Kai Strunz	Jan Suchanek	suchanek@campus.tu-berlin.de
	Module description	1
1. Module aims		

The master's in Energy Management aims to develop the following skills in the students:

This module deals with the technical and organizational challenges of grid management in a changing energy environment. It looks at transformation processes between different forms and sources of energy and considers novel technological developments. Students learn to independently report on technological developments and solve basic grid management problems.

The module primarily develops the following competencies (put a cross next to the relevant competence or write in percentages): Subject-specific competence [60] Methodological competence [20] Systems competence [20] Social competence [0]

2. Content

Grid management, balancing; liquid fuels and pipelines vs. electricity transmission; convergence, substitution and interoperability; redundancy principle; power-to-gas; powerto-heat; mobility-to-grid; CHP; virtual power plants; demand response, smart meters, contracts; RES integration; grid management technologies, prosumers, IT and conversion of grids, next-generation networks, micro smart grids.

3. Module components

=					
Course title	Course type	Hrs/week	ECTS credits:	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Security of Supply, Transport, Infrastructure, Logistics, Interfaces	Integr. course	0.5			
Power Grid System Management	Integr. course	0.5			
Transport Grids and E-Mobility	Integr. course	0.5			
Smart Grids, Smart Metering, IT Grids	Integr. course	0.5	10	С	SS
Transmission Capacity Allocation Mechanisms I	Integr. course	0.5			
Transmission Capacity Allocation Mechanisms II	Integr. course	0.5			

EM – Energy grids	Tutorial		1.5			
EM – Energy grids	eLearning cou	rse	4			
Case Studies and Company Program	Integr. course	e	1			
4. Description of course types						
Integrated courses often in the fo tutorial.	orm of seminar	-styl	e lectures,	eLearning	g course and	
5. Participation requirements						
Enrolled on the continuing educ	ation master's i	n En	ergy Man	agement a	t TU Berlin (2	2 nd sem.)
6. Module can be taken in follo	wing program	ns				
Continuing education master's in	n Energy Mana	gem	ent at TU-	Campus E	UREF (TU B	erlin)
7. Work load and credits						
3 hours per week of integr. cours	ses (in-person)		6 x 8	h	48 ł	1
1.5 hour per week of tutorial (in-	-person)		3 x 8	h	24 ł	1
4 hours per week of eLearning			8 x 8	h	64 h	1
1 hour per week of case studies a company program	and		15 h		15 h	1
Preparation and follow-up					131	h
Examination and preparation for exam (1 term paper)			2 h & 16	h	18 h	1
This amounts to a workload of 3 credits.	00 hours per se	emes	ter, which	is equival	ent to 10	
8. Module examination and gr	ading					
Type of examination: graded wr - There is one graded examin - Students who fail the exam	itten exam nation (written, may repeat it a	, dura at the	ation: 2 h) e beginnin	at the end g of the fo	of the module llowing seme	e. ster.
9. Module duration						
The module can be completed in	one semester.	It co	omprises a	pprox. 5 w	veeks.	
10. Number of participants						
Maximum number of participan	ts: 30					
11. Registration formalities						
Students can register for the eLe	arning course,	the t	utorial and	d the exam	ination via T	UBS.
12. Reading list and lecture no	tes					
Lecture notes available in hard c	opy: No					
Lecture notes available in electro	onic format: Ye	es				
If yes, give internet page: On the	e Moodle platfo	orm i	for the			
If yes, give internet page: On the program: https://www.isis.tu-ber	e Moodle platfo din.de/2.0/	ormi	for the			

Module title:	ECTS cred	its: S	hort title:		
Management	10	Е	M — Mana	igement	
Responsible for the module:	Secretary:	Е	mail:		
Prof. DrIng. Joachim	Jan Suchane	ek <u>sı</u>	uchanek@c	campus.tu-be	rlin.de
Müller- Kirchenbauer					
	Module desci	ription			
1. Module aims					
The master's in Energy Managem students:	ent aims to develo	op the follo	owing skill	s in the	
This module looks at the implicat organizations, for planning, mana understanding of the legal and ec- communicate? Students learn to c The module primarily develops th relevant competence or write in p Methodological competence [20]	tions of the changi agement and contro onomic framewor levelop and present the following comport percentages): Subj. Systems compete	ng energy ol. How ca k? How da nt appropri- petencies (ect-specifi nce [20] S	landscape an business o we opera- iate solution put a cross c competer locial comp	for industrial ses benefit fro te? And how ns. next to the nece [50] betence [10]	om our do we
2. Content					
Business ideas, proposals, plans, environmental communication, co- management; operational exceller <i>Energiewende</i> ; management of id	and models; small onflict manageme nce; system servic lle power; energy	l group con nt; change es and ene storage an	mmunication managemo ergy service d conversion	on, leadership ent; risk es; Germany' on.), S
3. Module components					
Course title	Course type	Hrs/week	ECTS credits:	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Energy management	Integr. course	3			
EM – Business Communication	Integr. course and tutorial	1.5	10	C	22
EM – Management	eLearning course	4	10	C	55
Case Studies and Company Program	Integr. course	1			
4. Description of course types					
Integrated courses in the form of	seminar-style lect	ures, eLea	rning cour	se and tutoria	1

Entoned on the continuing education muster 5 m	Energy Management a	t TU Berlin (2nd sem
6. Module can be taken in following program	5	
Continuing education master's in Energy Manag	ement at TU-Campus E	EUREF (TU Berlin)
7. Work load and credits		
3 hours per week of integr. courses (in-person)	6 x 8 h	48 h
1.5 hour per week of tutorial (in-person)	3 x 8 h	24 h
4 hours per week of eLearning	8 x 8 h	64 h
1 hour per week of case studies and company program	15 h	15 h
Preparation and follow-up		131 h
Examination and preparation for exam (1 term paper)	2 h & 16 h	18 h
This amounts to a workload of 300 hours per ser credits.	nester, which is equival	lent to 10
8. Module examination and grading		
points, short oral presentation 20 points. Students who do not pass may repeat at the begi taking a graded written exam (duration: 120 h).	nning of the following s	semester by
9 Module duration		
y. Module duration		
The module can be completed in one semester. I	t comprises approx. 5 v	veeks.
The module can be completed in one semester. I 10. Number of participants	t comprises approx. 5 v	veeks.
The module can be completed in one semester. I 10. Number of participants Maximum number of participants: 30	t comprises approx. 5 v	veeks.
The module can be completed in one semester. I 10. Number of participants Maximum number of participants: 30 11. Registration formalities	t comprises approx. 5 v	veeks.
The module can be completed in one semester. I 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course, the second	t comprises approx. 5 v	veeks.
The module can be completed in one semester. I 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course, the 12. Reading list and lecture notes	t comprises approx. 5 v	veeks.
The module can be completed in one semester. I 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course, the 12. Reading list and lecture notes Lecture notes available in hard copy: No	t comprises approx. 5 v	veeks.
The module can be completed in one semester. I 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course, the 12. Reading list and lecture notes Lecture notes available in hard copy: No Lecture notes available in electronic format: Yest	t comprises approx. 5 v	veeks.
The module can be completed in one semester. I 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course, th 12. Reading list and lecture notes Lecture notes available in hard copy: No Lecture notes available in electronic format: Yes If yes, give internet page: On the Moodle platfor	t comprises approx. 5 v ne tutorial and the exam	veeks.
The module can be completed in one semester. I 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course, tl 12. Reading list and lecture notes Lecture notes available in hard copy: No Lecture notes available in electronic format: Yes If yes, give internet page: On the Moodle platfor program: https://www.isis.tu-berlin.de/2.0/	t comprises approx. 5 v ne tutorial and the exam m for the	veeks.

Module title:	ECTS cred	its: S	hort title:		
Investment	10	E	M – Inves	tment	
Responsible for the module:	Secretary:	E	mail:		
Prof. Dr. Christian	Jan Suchane	ek si	uchanek@@	campus.tu-be	rlin.de
von Hirschhausen				•	
	Module descu	ription			
1. Module aims					
The master's in Energy Managerr students:	ent aims to develo	op the foll	owing skill	s in the	
This module looks at energy infra facilities and power plants are lar international, scope and importan insured? How can their risk be as investments. The module primarily develops th	astructure from a c ge-scale long-terr ice. How are such sessed? Students ne following comp	decision m n investme projects m learn to ind petencies (aker point ents of nati- nanaged? F dependentl put a cross	of view. Grid onal, if not Iow can they y evaluate next to the	ls, storage be
relevant competence or write in p	ercentages):				
Subject-specific competence [60] Social competence [0]	Methodological	competenc	e [20] Sys	tems compete	ence [20]
2. Content					
Investment in infrastructure, pow foreign direct investment (FDI) assessment and risk managemen portfolio management; investmer	ver plants, grids an ; financial tools, ent; corporate fin at in replacement a	nd storage; insurance; ance; beh and mainte	special pu e, derivativ avioral fin mance; ass	rpose vehicle ves, virtualiza nance; invest et manageme	es (SPVs); ation; risk ment and nt.
3. Module components					
Course title	Course type	Hrs/week	ECTS credits:	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Investment in Grids, Storage, and Power Plants	Integr. course	1			
Investment Operations Management	Integr. course	1			
Investment in Renewables	Integr. course	1	10	С	SS
EM – Investment	Tutorial	1.5			
EM – Investment	Learning course	4			
Case Studies and Company Program	Integr. course	1			

Integrated courses often in the form of seminar-	style lectures el earning	course and
tutorial.	style lectures, eleanning	g course and
5. Participation requirements		
Enrolled on the continuing education master's ir	Energy Management a	t TU Berlin (2 nd sen
6. Module can be taken in following program	s	
Continuing education master's in Energy Manag	ement at TU-Campus E	UREF (TU Berlin)
7. Work load and credits		
3 hours per week of integr. courses (in-person)	6 x 8 h	48 h
1.5 hour per week of tutorial (in-person)	3 x 8 h	24 h
4 hours per week of eLearning	8 x 8 h	64 h
Case Studies and Company Program	15 h	15 h
Preparation and follow-up		131 h
Examination and preparation for exam (1 term paper)	2 h & 16 h	18 h
This amounts to a workload of 300 hours per second se	mester, which is equival	ent to 10
8. Module examination and grading		
Type of examination: written exam - There is one examination (written, duration - Students who fail the exam may repeat it a	n: 4 h) at the end of the r t the beginning of the fo	module. llowing semester.
9. Module duration		
The module can be completed in one semester.	It comprises approx. 5 v	veeks.
10. Number of participants		
Maximum number of participants: 30		
11. Registration formalities		
Students can register for the eLearning course, t	he tutorial and the exam	ination via TUBS.
12. Reading list and lecture notes		
Lecture notes available in hard copy: No		
Lecture notes available in electronic format: Ye	8	
	rm for the	
If yes, give internet page: On the Moodle platfor		
If yes, give internet page: On the Moodle platfor program: https://www.isis.tu-berlin.de/2.0/		

					
Module title:	ECTS cred	its: S	hort title:		
Compulsory elective module: Efficiency Management	10	E	M – Effic	iency Manage	ement
Responsible for the module:	Secretary:	Ε	mail:		
Prof. DrIng. Joachim Müller- Kirchenbauer	Jan Suchane	ek <u>si</u>	uchanek@o	campus.tu-be	<u>rlin.de</u>
	Module descr	ription			
1. Module aims					
The master's in Energy Manager students:	nent aims to devel	op the foll	owing skil	ls in the	
Students look at technical project neighborhoods, and apply the kn	ts and products such the second se	ch as build prior mod	lings, plant lules in cas	ts and urban se studies.	
The module primarily develops to relevant competence or write in	the following compercentages):	petencies (put a cross	next to the	
Subject-specific competence [60 Social competence [0]] Methodological	competenc	e [20] Sys	tems compete	ence [20]
2. Content					
Buildings and energy efficiency; combined heat and power genera technologies, payback calculatio management, ISO standards.	greenhouse gas en ation, process chain n methods, local h	missions, on managen n managen eat and co	lemand sid nent, energ oling grids	e managemer y efficiency , project	ıt,
3. Module components					
Course title	Course type	Hrs/week	ECTS credits:	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
EM – Efficiency Management	Integr. course	4			
EM – Efficiency Management	eLearning course	2	10	CE	WS
Case Studies and Company Program	Integr. course	1			
4. Description of course types					
Integrated courses often in the fo tutorial.	orm of seminar-sty	le lectures	, eLearning	g course and	
5. Participation requirements					
Enrolled on the continuing education	ation master's in E	nergy Mar	agement a	t TU Berlin	

Continuing education master's in Energy M	anagement at TU-Campus EU	JREF (TU Berlin)
7. Work load and credits		
4 hours per week of integr. courses	4 x 15 h	60 h
2 hours per week of eLearning	4 x 8 h	32 h
1 hour per week of case studies and company program	15 h	15 h
Preparation and follow-up		137 h
Project task	40 h & 16 h	56 h
This amounts to a workload of 300 hours pe	er semester, which is equivale	nt to 10 credits.
8. Module examination and grading		
presentation material 50 points, oral present	tation 25 points.	ussion 25 points,
 Pype of examination, angladed portions every presentation material 50 points, oral present Students who do not pass may repeat at the written exam (2 h). 9. Module duration 	aluation; contribution to discr tation 25 points. end of the current semester b	ussion 25 points, y taking a graded
 Pype of examination, ungraded portion every presentation material 50 points, oral present Students who do not pass may repeat at the written exam (2 h). 9. Module duration The module can be completed in one semes 	aluation; contribution to discr tation 25 points. end of the current semester b	ussion 25 points, y taking a graded eeks.
 Provide the second se	aluation; contribution to discr tation 25 points. end of the current semester b	ussion 25 points, y taking a graded eeks.
 Pype of examination: ungraded portion every presentation material 50 points, oral presentation Students who do not pass may repeat at the written exam (2 h). 9. Module duration The module can be completed in one semes 10. Number of participants Maximum number of participants: 30 	aluation; contribution to discr tation 25 points. end of the current semester b	ussion 25 points, y taking a graded eeks.
 Pype of examination: ungraded portions even presentation material 50 points, oral presen Students who do not pass may repeat at the written exam (2 h). 9. Module duration The module can be completed in one semes 10. Number of participants Maximum number of participants: 30 11. Registration formalities 	aluation; contribution to discr tation 25 points. end of the current semester b	ussion 25 points, y taking a graded eeks.
 Pype of examination: ungraded portion every presentation material 50 points, oral presentation students who do not pass may repeat at the written exam (2 h). 9. Module duration The module can be completed in one semes 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning counterpart of the elearning counterpar	ratuation; contribution to discr tation 25 points. end of the current semester by ster. It comprises approx. 5 we	ussion 25 points, y taking a graded eeks.
 Presentation material 50 points, oral presentation material 50 points, oral presentation material 50 points, oral presentation students who do not pass may repeat at the written exam (2 h). 9. Module duration The module can be completed in one semes 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning count 12. Reading list and lecture notes 	ratuation; contribution to discr tation 25 points. end of the current semester b ster. It comprises approx. 5 we	ussion 25 points, y taking a graded eeks. nation via TUBS.
 Provide the second state of the secon	ratuation; contribution to discr tation 25 points. end of the current semester by ster. It comprises approx. 5 we	ussion 25 points, y taking a graded eeks. nation via TUBS.
 Provide the second state of the secon	ratuation; contribution to discr tation 25 points. end of the current semester b ster. It comprises approx. 5 we rse, the tutorial and the examination :: Yes	ussion 25 points, y taking a graded eeks. nation via TUBS.
 Type of examination, angladed portion every presentation material 50 points, oral present Students who do not pass may repeat at the written exam (2 h). 9. Module duration The module can be completed in one semes 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning courtion formalities Lecture notes available in hard copy: No Lecture notes available in electronic format If yes, give internet page: On the Moodle planet. 	aluation; contribution to discr tation 25 points. end of the current semester b ster. It comprises approx. 5 we rse, the tutorial and the examinent :: Yes latform for the program:	ussion 25 points, y taking a graded eeks.
 Type of examination, ungraded portion every presentation material 50 points, oral presentation material 50 points, oral presentation students who do not pass may repeat at the written exam (2 h). 9. Module duration The module can be completed in one semestation for participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning countain the semestation of the electronic formation of the second se	aluation; contribution to disci tation 25 points. end of the current semester b ster. It comprises approx. 5 we rse, the tutorial and the examination :: Yes latform for the program:	ussion 25 points, y taking a graded eeks.

Module title:	ECTS cred	lits: S	hort title:		
Compulsory elective module: Innovation	10	E	M — Innov	vation Manag	ement
Responsible for the module:	Secretary:	E	mail:		
Prof. Dr. Jan Kratzer	Jan Suchan	ek <u>sı</u>	uchanek@	campus.tu-be	rlin.de
	Module desc	ription			
1. Module aims					
The master's in Energy Managem students:	ent aims to devel	op the foll	owing skil	ls in the	
In this module students look at in administrative, financial and theo develop and present innovative bu	novations, team b retical issues in a usiness models in	ouilding, m specific pr the energy	anagement ractical con sector.	t processes an ntext. Student	nd is learn to
The module primarily develops the relevant competence or write in p Methodological competence [20]	ne following comj ercentages): Subj Systems compete	petencies (ect-specifi ence [20] S	put a cross c compete locial com	next to the nce [50] petence [10]	
2. Content					
Innovation management; technica of innovations; team building and modelling; agile methods; softwa temporary task forces; restrictive	Illy, economically team manageme re; synergy; inno vs. promotive con	and socia nt; innovat vation path ntrol; inter-	lly sustain ion assess ways; ven -organisati	able impleme ment; systema ture teams; onal teams.	ntation atic
3. Module components					
Course title	Course type	Hrs/week	ECTS credits:	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semeste (WS/SS
EM — Technology and Innovation Management	Integr. courses	4			
EM — Technology and Innovation Management	eLearning	2	10	CE	WS
Case Studies and Company Program	Integr. courses	1			
4. Description of course types					
Integrated course with eLearning	components				

er i ur despudon i equit emento		
Enrolled on the continuing education master's	s in Energy Management a	t TU Berlin (3rd sem.)
6. Module can be taken in following progra	ams	
Continuing education master's in Energy Man	nagement at TU-Campus E	EUREF (TU Berlin)
7. Work load and credits		
4 hours per week of integr. courses	4 x 15 h	60 h
2 hours per week of eLearning	4 x 8 h	32 h
1 hour per week of case studies and company program	15 h	15 h
Preparation and follow-up		137 h
eLearning project task	40 h & 16 h	56 h
This amounts to a workload of 300 hours per credits.	semester, which is equival	lent to 10
8 Madula avamination and grading		
Type of examination: ungraded portfolio eval	luation; 50 points: presenta	ation of 20 minutes,
Type of examination and grading Type of examination: ungraded portfolio eval 50 points: written write-up of 10 pages. Stude who do not pass may repeat at the end of the exam (2 h).	luation; 50 points: presenta ents need 51 points to attain current semester by taking	ation of 20 minutes, n a pass. Students a graded written
 Type of examination and grading Type of examination: ungraded portfolio eval 50 points: written write-up of 10 pages. Stude who do not pass may repeat at the end of the exam (2 h). 9. Module duration 	luation; 50 points: presenta ents need 51 points to attain current semester by taking	ation of 20 minutes, n a pass. Students a graded written
 3. Module examination and grading Type of examination: ungraded portfolio eval 50 points: written write-up of 10 pages. Stude who do not pass may repeat at the end of the exam (2 h). 9. Module duration The module can be completed in one semester 10. Number of participants. 	luation; 50 points: presenta ents need 51 points to attain current semester by taking er.	ation of 20 minutes, n a pass. Students a graded written
 3. Module examination and grading Type of examination: ungraded portfolio eval 50 points: written write-up of 10 pages. Stude who do not pass may repeat at the end of the exam (2 h). 9. Module duration The module can be completed in one semester 10. Number of participants 	luation; 50 points: presenta ents need 51 points to attain current semester by taking er.	ation of 20 minutes, n a pass. Students a graded written
 3. Module examination and grading Type of examination: ungraded portfolio evai 50 points: written write-up of 10 pages. Stude who do not pass may repeat at the end of the exam (2 h). 9. Module duration The module can be completed in one semeste 10. Number of participants Maximum number of participants: 30 11. Basistantian formalities 	luation; 50 points: presenta ents need 51 points to attain current semester by taking er.	ation of 20 minutes, n a pass. Students a graded written
 3. Module examination and grading Type of examination: ungraded portfolio evail 50 points: written write-up of 10 pages. Stude who do not pass may repeat at the end of the exam (2 h). 9. Module duration The module can be completed in one semester 10. Number of participants Maximum number of participants: 30 11. Registration formalities 	luation; 50 points: presenta ents need 51 points to attain current semester by taking er.	ation of 20 minutes, n a pass. Students a graded written
 3. Module examination and grading Type of examination: ungraded portfolio evai 50 points: written write-up of 10 pages. Stude who do not pass may repeat at the end of the exam (2 h). 9. Module duration The module can be completed in one semeste 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course 	luation; 50 points: presenta ents need 51 points to attain current semester by taking er. e, the tutorial and the exam	ation of 20 minutes, n a pass. Students a graded written
 3. Module examination and grading Type of examination: ungraded portfolio evail 50 points: written write-up of 10 pages. Stude who do not pass may repeat at the end of the exam (2 h). 9. Module duration The module can be completed in one semester 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course 12. Reading list and lecture notes 	luation; 50 points: presenta ents need 51 points to attain current semester by taking er.	ation of 20 minutes, n a pass. Students a graded written
 3. Module examination and grading Type of examination: ungraded portfolio evai 50 points: written write-up of 10 pages. Stude who do not pass may repeat at the end of the exam (2 h). 9. Module duration The module can be completed in one semester 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course 12. Reading list and lecture notes Lecture notes available in hard copy: No 	luation; 50 points: presenta ents need 51 points to attain current semester by taking er.	ation of 20 minutes, n a pass. Students a graded written
 5. Module examination and grading Type of examination: ungraded portfolio eval 50 points: written write-up of 10 pages. Stude who do not pass may repeat at the end of the exam (2 h). 9. Module duration The module can be completed in one semester 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course 12. Reading list and lecture notes Lecture notes available in hard copy: No Lecture notes available in electronic format: 	luation; 50 points: presenta ents need 51 points to attain current semester by taking er. e, the tutorial and the exam	ation of 20 minutes, n a pass. Students a graded written
 3. Module examination and grading Type of examination: ungraded portfolio eval 50 points: written write-up of 10 pages. Stude who do not pass may repeat at the end of the exam (2 h). 9. Module duration The module can be completed in one semester 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course 12. Reading list and lecture notes Lecture notes available in hard copy: No Lecture notes available in electronic format: If yes, give internet page: On the Moodle pla 	luation; 50 points: presenta ents need 51 points to attain current semester by taking er. e, the tutorial and the exam Yes tform for the	ation of 20 minutes, n a pass. Students a graded written
 3. Module examination and grading Type of examination: ungraded portfolio eval 50 points: written write-up of 10 pages. Stude who do not pass may repeat at the end of the exam (2 h). 9. Module duration The module can be completed in one semester 10. Number of participants Maximum number of participants: 30 11. Registration formalities Students can register for the eLearning course 12. Reading list and lecture notes Lecture notes available in hard copy: No Lecture notes available in electronic format: If yes, give internet page: On the Moodle plat program: https://www.isis.tu-berlin.de/2.0/ 	luation; 50 points: presenta ents need 51 points to attain current semester by taking er. e, the tutorial and the exam Yes tform for the	ation of 20 minutes, n a pass. Students a graded written