Technische Universität Berlin

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Faculties

Study and Examination Regulations for the International Continuing Education Master's Program in Building Sustainability – Management Methods for Energy Efficiency at TU-Campus EUREF of Technische Universität Berlin

of Tuesday, 23 October, 2018

On 23 October 2018, the TU-Campus EUREF Joint Decision-Making Committee of Technische Universität Berlin adopted the following study and examination regulations for the continuing education master's program in Building Sustainability in accordance with Section 18 (1) no. 1 of the Constitution of Technische Universität Berlin and Section 71 (1) no.1 of the Berlin State Higher Education Act (*Berliner Hochschulgesetz* - BerlHG) in the version of 26 July 2011 (Berlin Gazette of Laws and Ordinances - GVBl., p. 378), last amended by Section 4 of the BerlHG on 9 May 2016 (GVBl. p. 226).*

Contents

I. General regulations

Section 1 – Scope of application

These study and examination regulations set out the aims and structure of this degree program as well as the requirements and arrangements of the examinations in the international continuing education master's program in Building Sustainability – Management Methods for Energy Efficiency. They supplement the Regulations Governing General Study and Examination Procedures of Technische Universität Berlin (Ordnung zur Regelung des allgemeinen Studien- und Prüfungsverfahrens – AllgStuPO) with program-specific provisions.

Section 2 – Entry into force/expiration

(1) These regulations take effect on the day after their publication and apply to students enrolled from the 2019/2020 winter semester onwards.

(2) The study and examination regulations for the international continuing education master's program in Building Sustainability – Management Methods for Energy Efficiency of 30 October 2015 (TU Official Gazette 14/2016 p. 121) will no longer apply once the present study and examination regulations take effect.

In addition to the students mentioned in paragraph 1, these study and examination regulations apply to all students that are already enrolled in the Building Sustainability – Management Methods for Energy Efficiency master's program.

II. Program objectives and structure

Section 3 – Learning outcomes, program content and professional fields

(1) The aim of the program is to provide the students with a common theoretical and practical knowledge base in energy-efficient sustainable building management in urban areas, taking into account their differing knowledge bases on entering the program. In the context of climate change and economic transformations, the continuing education master's program in Building Sustainability – Management Methods for Energy Efficiency is concerned with the challenges and opportunities of integrating renewable energies in buildings and urban neighborhoods while taking into account further sustainability issues (e.g. economic and social).

At the core of this master's program is a comprehensive approach to the topic of energy in urban areas that focuses on understanding economic processes and the use of technical indicators and innovations in the building sector. This means that graduates of the program will be able to determine key indicators for the energy performance of buildings, set project and quality management standards and perform financial and investment calculations as part of feasibility studies. They will be able to evaluate and justify which indicators and concepts should be used under which circumstances. They will also be able to communicate European and international building certification standards and apply these to building projects.

Technological innovations in this area are a central challenge, and they are examined in cooperation with partners outside the University from the point of view of responsibility in a variety of societal contexts. The aim of this work with external institutions is to develop solutions for problems faced by civil society. With this knowledge, graduates will be able to outline and compare the varying social significance of energy efficiency. They will also be able to analyze examples of good and bad practice in project management.

The focus here is on the students' learning process. Therefore, by developing their understanding of the key engineering and technical aspects of energy-related building projects, the program also provides students with a knowledge base in the disciplines of the stakeholders in consultation processes.

This means that graduates will be able to explain the core concepts of these disciplines and make decisions in building projects while involving all interested parties.

Lastly, students develop skills in coordinating, facilitating and responsibly designing and leading appropriate and inclusive consultations. Graduates will, therefore, be able to independently plan and design building projects, and bring together the participating disciplines and their interests, even

* Approved by the TU Berlin Executive Board on 1 March 2019.

where these are difficult to reconcile.

A variety of teaching methods provide students with core skills and establish a link to practice and research. Graduates will, therefore, be able to calculate key building and project indicators and use these to argue how real projects should be organized and developed.

The master's program is taught in English to increase its international appeal. Lectures and seminars take place on the campus at the Schöneberger Gasometer. On campus, students can experience and help shape knowledge and technology transfer between Technische Universität Berlin and companies operating in this field. They can acquire social and subject-specific skills and put these to active use, giving them the opportunity not only to advance their personal development but also shape the future of society.

(2) Today, responsible companies have to adapt their solutions to meet sustainability criteria. The resulting significant increase in demand for expert personnel with wide-ranging training and specialist English skills is not currently being met by existing programs. The TU master's program meets the demand in this field and prepares students for technical leadership positions in relevant companies in the building and real estate industry.

(3) Based on the knowledge acquired in this transdisciplinary master's degree, graduates will be able to find employment in the real estate and energy industries, in consumer and environmental protection organizations, as well as in management positions in these areas. This includes work in planning, decision-making, and implementation processes, as energy contract and environmental protection managers, as members of central management departments, and as project managers in the building and urban neighborhood energy sector.

Section 4 – Program start, standard period of study and required coursework, language of instruction and examination language

(1) The program starts in the winter semester.

(2) The standard period of study, including completion of the master's thesis, is three semesters. The program can be completed on a part-time basis in accordance with Section 23 of the Regulations Governing General Study and Examination Procedures AllgStuPO.

(3) The program is worth 90 credit points.

(4) The teaching curriculum and the entire examination procedure are structured and organized in such a way as to enable students to complete the program within the standard period of study.

(5) The program is organized in such a way that an optional study-related stay abroad can be completed within the standard period of study. For this purpose, it is possible to have a mobility window in full-time and part-time degrees in the second or (preferably) in the third semester.

(6) The teaching and examination language in all compulsory modules and compulsory elective modules is English.

Section 5 - Program structure

(1) Students have the right to individually determine the order of progression of their own course of study. They are, however, obliged to comply with the provisions laid out in these Study and Examination Regulations. Students are recommended to follow the chronology of modules set down in the proposed course schedule in the Annex to these Regulations. This does not affect any possible constraints resulting from subject-specific admission requirements for modules.

(2) Students must earn a total of 90 credit points, of which 72 credits are awarded for modules and 18 credits for the master's thesis.

(3) The compulsory component of the program is worth 60 credits. The modules assigned to the different components can be found in the module catalog (Annex 1).

(4) The compulsory elective component of the program is worth 12 credits. The modules assigned to the different components can be found in the module list (Annex 1).

(5) In accordance with Section 33 (4) of the Regulations Governing General Study and Examination Procedures (*AllgStuPO*), the skills and knowledge to be taught in specific modules, the requirements for module examinations, and the relevant admission requirements, if any, are updated annually in the form of course-specific module catalogs and are published in the Official Gazette of TU Berlin at the beginning of the winter semester in October and the beginning of the summer semester in April.

III. Requirements and conduct of examinations

Section 6 – Aim of the master's examination

The master's examination determines whether a candidate has achieved the learning outcomes in accordance with Section 3 of these regulations.

Section 7 – The master's degree

Students who have passed the master's examination are awarded the academic title Master of Business Administration (MBA) by Technische Universität Berlin through the TU-Campus EUREF Joint Decision-Making Committee (GKmE).

Section 8 – Scope of the master's examination; calculation of the overall grade

(1) The master's examination comprises the module examinations listed in the module catalog (Annex 1) and the master's thesis according to Section 9.

(2) According to the principles stipulated in Section 47 of the Regulations Governing General Study and Examination Procedures (*AllgStuPO*), the overall grade is to be determined by combining the grades achieved for those examinations arising from modules taken from the module catalog that are marked both as graded and for inclusion in the overall grade together with the grade achieved for the master's thesis.

Section 9 – The master's thesis

(1) The master's thesis is usually completed in the third semester. It amounts to 18 credits and is to be produced within 18 weeks. In the event that important grounds exist that prevent the completion of the thesis within this time frame, and these grounds lie outside of the student's control, the examination board shall grant an extension of the deadline for so long as the grounds in question continue to exist. The total maximum extension possible is 18 weeks. In the event that the combined extensions exceed the stipulated maximum period of extension, the student may withdraw from the examination.

(2) To apply for admission to the master's thesis, students must submit evidence of having successfully completed module examinations worth at least 60 credit points to the responsible office. The examination board may grant exceptions to students who make a justified request to this effect.

(3) The topic of the master's thesis may be rejected once, however only within the first four weeks of being issued by the responsible office.

(4) The procedures for applying for admission to and assessment of a final thesis are regulated in the current version of the Regulations Governing General Study and Examination Procedures (*AllgStuPO*).

(5) Persons with experience in professional practice and training can be appointed as examiners of final papers. It is generally more important that second examiners meet this criterion.

(6) The master's thesis must be written in English. It is approximately 50 pages in length.

Section 10 – Types of assessments and examination registration

The different types of assessment and the procedure for registering for module examinations are established in the AllgStuPO as amended. In addition, the following types of examination are possible:

a. Term paper in accordance with Section 10a.

b. Presentation in accordance with Section 10 b.

Section 10a – Term paper

(1) The term paper is a written assignment through which students are expected to demonstrate their ability to work scientifically on a specific topic from the thematic area covered by the module while placing it in the module's overall context. The written term paper can be combined with an oral component in the framework of the respective course.

(2) The examiner specifies the exact length of the term paper, the resources permitted, rules for the paper's presentation as well as the assessment criteria and informs students accordingly at the start of the module. The term paper may exceed or be less than the number of pages set by the examiner with the consent of the examiner. The requirements for registering a term paper can be found in the Module Handbook.

(3) The examiner provides the students with a selection of topics for term papers. When assigning term paper topics, the examiner pays attention to the parity of the various topics and must ensure that students can work on and complete these topics independently, using scientific methods and within the limits of the workload foreseen in the module description.

(4) If several examiners are authorized and appointed to conduct examinations for a module in which a term paper is foreseen, students are entitled to choose from amongst all those examiners whose courses they have attended in the module. Module supervisors can appoint another examiner in agreement with the candidate if important reasons apply, in particular, if the chosen examiner has an excessive workload in conjunction with examinations.

(5) In some cases, a joint term paper can be produced by several students (group term paper). The module supervisor specifies the details.

(6) The term paper must include page numbers, a table of contents, and a list of sources and resources used. It must be submitted to the examiner in electronic form (pdf). When writing the term paper, students must apply accepted rules of referencing and of academic work, e.g. MLA, APA, Harvard, Turabian or similar guidelines. If a candidate is shown to have violated these rules, the module examination is deemed a fail.

(7) The final result of the examination is forwarded to the responsible office for information and filing. The same applies to the term paper.

(8) If the term paper is graded as "Insufficient", it can be repeated up to two times. The student must be informed via the notice board *at the latest* by the end of the semester in which the term paper was submitted as to whether the term paper was graded as at least "Sufficient" (4.0).

Section 10b – Presentation

(1) The presentation is an assessment through which students are expected to demonstrate their ability to hold an academic lecture for a specified duration in front of other students on a specific question from the thematic area covered by the module while placing the specific topic in the module's overall context.

(2) The presentation takes place on a date set by the examiner during a course's contact hours. As a rule, the actual presentation lasts 10 to 45 minutes. At the start of the course leading to the examination, the examiner informs students whether and which material is to be produced to accompany the presentation (e.g. handout, slides) and whether and in which form presenters must participate in a subsequent discussion or chair such a discussion. The total time for presentation and discussion may not exceed 90 minutes.

(3) At the start of the module, the examiner sets the presentation topics, examination dates for the module and exact scope of the presentations, permitted resources, rules for presenting the work, procedure for allocating presentation topics, and assessment criteria.

(4) When assigning presentation topics, the examiner pays attention to the parity of the various topics and must ensure that students can work on and complete these topics within the limits of the workload foreseen in the module description.

(5) Each presentation topic is bound to a specific date. Students must therefore hold their presentation on the date set by the examiner. The module supervisor decides on exceptions.

(6) A joint presentation can be produced by several students (group presentation). The module supervisor specifies the details.

IV. Annexes

Annex 1: Module Catalog

Annex 2: Sample Course Schedule

Annex 3: Module Descriptions

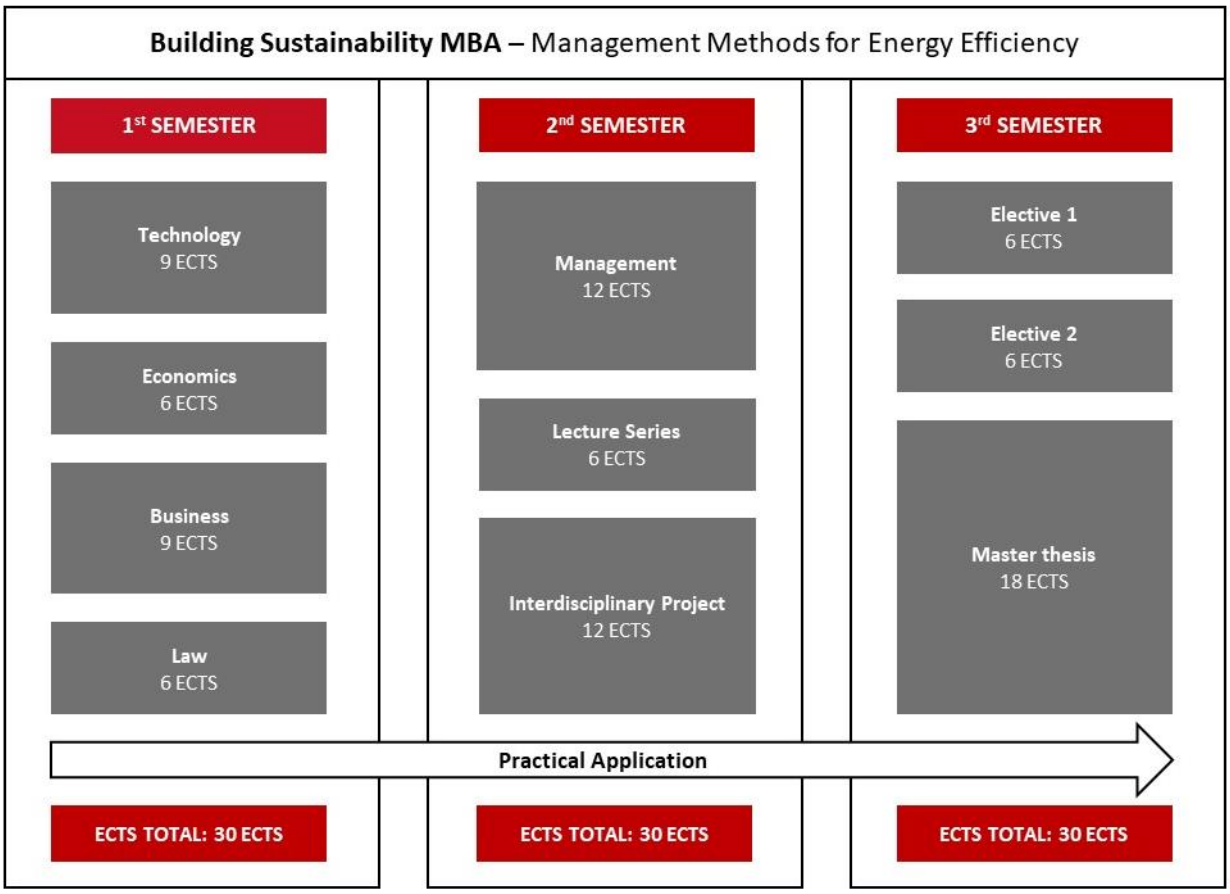
Annex 1: Module Catalog[1]

N⁰	Module	Credit Points (ECTS)	Type of assessment	Graded	Weighting in overall grade[2]
	Compulsory modules				
1	Building Technologies	9	Written (examination)	Yes	1
2	Real Estate Economics	6	Written (examination)	Yes	1
3	Business of Sustainable Real Estate	9	Portfolio	No	-
4	Legal Aspects in the Real Estate Sector	6	Written (term paper)	Yes	1
5	Management Areas in Real Estate	12	Portfolio	Yes	1
6	Lecture series: "Sustainable, energy-efficient conversion of building and neighborhood structures"	6	without examination	No	-
7	Interdisciplinary Project	12	Portfolio	Yes	1
8	**Compulsory elective modules**	Choose two from list			
a	Energy-Efficient Societies	6	Portfolio	No	-
b	Sustainable Urban Development	6	Portfolio	No	-
c	Integration of Renewable Energies	6	Portfolio	No	-
d	Specialist Management: Innovation Management A	6	Portfolio	No	-
e	Specialist Management: Innovation Management B	6	Portfolio	No	-
f	Specialist Management: Efficiency Management A	6	Portfolio	No	-
g	Specialist Management: Efficiency Management B	6	Portfolio	No	-
9	**Master's thesis**	18			1
	Total	90			1

[1] The module descriptions are published annually in the Official Gazette of TU Berlin at the beginning of the winter semester in October and at the beginning of the summer semester in April. The version published therein is then valid. (see Section 33 (6) of the Regulations Governing General Study and Examination Procedures – *AllgStuPO*).

[2] Specification "1" means that the grade will be weighted according to the number of credits (Section 47 (6) of the Regulations Governing General Study and Examination Procedures – *AllgStuPO*); "-" means the grade is not weighted; every further figure is a multiplication factor of the number of credits.

Annex 2: Sample Course Schedule



Annex 3: Module descriptions

1. Building Technologies
2. Real Estate Economics
3. Fundamentals of Business Studies
4. Legal Fundamentals
5. Real Estate Management
6. Lecture series: Sustainable, energy-efficient conversion of building and neighborhood structures
7. Interdisciplinary Project
8 a. Compulsory elective: Energy-Efficient Societies
8 b. Compulsory elective: Sustainable Urban Development
8 c. Compulsory elective: Integration of Renewable Energies
8 d. Compulsory elective: Technology and Innovation Management I
8 e. Compulsory elective: Technology and Innovation Management II

1. Building Technologies

Module title: Building Technologies	**Credit Points (ECTS):** 9	**Short title:** Technology (BuSu)
Module supervisor: Prof. Dr.-Ing. M. Norbert FISCH	**Office:** Laura Lehmann	**Email:** laura.lehmann.1@campus.tu-berlin.de

Module description

1. Module aims

In this module, students review and gain more in-depth general technical knowledge and knowledge of energy technologies and systems in the context of current developments taking into account social responsibility and sustainable development. The module also covers the most important technological insights, and the technological foundations of the subsequent modules are explained.

Students will be able to define and evaluate various procedures, apply them to selected cases in the construction sector and present options for optimizing them.

The module **primarily** develops the following competencies (in %):

Subject-specific competence [60] Methodological competence [10] Systems competence [20] Social competence [10]

2. Content

Principles of physics (basic units of physics, mechanics, thermodynamics, electromagnetism, optics), principles of energy technology, principles of chemistry (fuels, combustion, batteries, fuel cells), principles of electrical engineering (electrical energy technology), principles of mechanical engineering (combustion engines, turbines, pumps and compressors), principles of process engineering, biomass, fossil fuels, renewable energy sources, geothermal energy, hydropower, wind power, solar thermal energy, photovoltaics, power grids, switchover processes, Carnot cycle & method, storage and transport technology, building technology, and specific content from the field of building management.

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Technology I	IV	1.6	9	C	Winter semester
Technology II	IV	1.6			
Technology Tutorial	Tut	1.6			
Case studies and accompanying program	IV	1.6			

4. Description of course types

Integrated courses (IV) in the form of seminar-style lectures, e-learning course, tutorial and excursions

5. Participation requirements

Enrolled in the continuing education master's in Building Sustainability – Management Methods for Energy Efficiency (MBA) at TU Berlin (1st-course semester).

6. Module can be taken in following programs

Continuing education master's in Building Sustainability - Management Methods for Energy Efficiency (MBA) at TU Berlin.

7. Workload and credits

3.2 hours per week of seminar-style lectures (in person)		48 h
1.6 hours per week of tutorials (in person)		24 h
1.6 hours per week of case studies and accompanying program		24 h
Preparation and follow-up incl. e-learning		128 h
Examination and exam preparation		46 h

This amounts to a workload of **270 hours** per semester, which is equivalent to **9 credits**.

8. Module completion

Graded
Type of assessment: written exam
There will be one assessed test (written; duration 120 mins) at the end of the module.
Students who fail the exam may repeat it at the beginning of the following semester.

9. Module duration

The module can be completed in **one** semester.

10. Number of participants

Technology I: Maximum number of participants: 90
Technology II: Maximum number of participants: 30

11. Registration formalities

Students can register for the e-learning 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
On the Moodle platform for the program:
https://www.isis.tu-berlin.de/2.0/

Reading list:
The reading list is provided in the e-learning course on Moodle.

2. Economics Fundamentals

Module title: Economics Fundamentals	**Credit Points (ECTS):** 6	**Short title:** Economics (BuSu)
Module supervisor: Prof. Dr.-Ing. Nicole RIEDIGER	**Office:** Laura Lehmann	**Email:** laura.lehmann.1@campus.tu-berlin.de

Module description

1. Module aims

This module is an introduction to economics. It covers the most important principles of economics taking into account social responsibility and sustainable development. The module engages with the latest research and encourages a critical and reflective approach in providing a grounding in economics for subsequent modules.

Students are able to employ specialized knowledge and aspects of economics and to compare general and selected cases from the construction sector.

The module **primarily** develops the following competencies:

Subject-specific competence [60] Methodological competence [10] Systems competence [20] Social competence [10]

2. Content

Concepts in microeconomics (microeconomic analysis and market interaction of businesses, households and governmental organizations), aggregated demand, factors in production decisions, supply and demand, markets (competitive market, monopoly market, functioning markets, market failure, market regulation, price regulation, energy and commodity markets), taxation, principles of investment decisions, societal welfare, merit order effect, sustainability, commodities sector, energy industry and public utilities.
Principles of macroeconomics, capitalism as an economic system (private property, companies, markets), technological change & economic growth, competitive markets, banks, fiscal and monetary policy, unemployment, inflation, and the global economic crisis.
Application of economic theories and methods, depending on the focus of studies, with links to the building sector.

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) Compulsory elective CE)	Semester (WS/SS)
Economics I	IV	1.6	6	C	Winter semester
Economics II	IV	0.5			
Economics Tutorial	Tut	1.1			
Case studies and accompanying program	IV	1.1			

4. Description of course types

Integrated course (IV) with lectures, exercises, tutorials, e-learning course and accompanying program.

5. Participation requirements		
Enrolled in the continuing education master's in Building Sustainability – Management Methods for Energy Efficiency (MBA) at TU Berlin (1st-course semester).		
6. Module can be taken in following programs		
Continuing education master's in Building Sustainability – Management Methods for Energy Efficiency (MBA) at TU Berlin.		
7. Workload and credits		
2.1 hours per week of seminar-style lectures (in person)		32 h
1.1 hours per week of tutorials (in person)		16 h
1.1 hours per week of case studies and accompanying program		16 h
Preparation and follow-up incl. e-learning		98 h
Examination and exam preparation		18 h
This amounts to a workload of **180 hours** per semester, which is equivalent to **6 credits**.		
8. Module completion		
Graded Type of assessment: written exam There will be one assessed test (written; duration 90 mins) at the end of the module. Students who fail the exam may repeat it at the beginning of the following semester.		
9. Module duration		
The module can be completed in **one** semester.		
10. Number of participants		
Economics I: Maximum number of participants: 90 Economics II: Maximum number of participants: 30		
11. Registration formalities		
Students can register for the e-learning 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, provide link: On the Moodle platform for the program: https://www.isis.tu-berlin.de/2.0/ The reading list is provided in the e-learning course on Moodle.		

3. Fundamentals of Business Studies

Module title: Business Fundamentals	**Credit Points (ECTS):** 9	**Short title:** Business (BuSu)
Module supervisor: TBA	**Office:** Laura Lehmann	**Email:** laura.lehmann.1@campus.tu-berlin.de

Module description

1. Module aims

This module is an introduction to business studies. It covers the most important principles of business studies taking into account social responsibility and sustainable development. The module engages with the latest research and encourages a critical and reflective approach in providing a grounding in business studies for subsequent modules.

Students will be able to define the main features of business studies, apply problem-solving skills to case studies using different fields of knowledge and, depending on the focus of their studies, present options for optimizing the construction sector.

The module **primarily** develops the following competencies (in %):
Subject-specific competence [50] Methodological competence [10] Systems competence [20] Social competence [20]

2. Content

Evaluation of companies, corporate accounting (balance sheets, financial reporting, financial control), taxes, depreciation, basic principles of strategy development, production management, business ethics, investment & financing (corporate finance), liquidity, marketing & sales (consumer behavior, SWOT, Ansoff matrix, BCG matrix, demand analysis, advertising, etc.), organizational behavior (HR management, leadership), sustainability and, depending on the focus of studies, links to the building sector.

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Business I	IV	1.6	9	C	Winter semester
Business II	IV	1.6			
Business Tutorial	Tut	1.6			
Case studies and accompanying program	IV	0.8			

4. Description of course types

Integrated courses (IV) in the form of lectures with seminar-style lectures, e-learning course, tutorial, exercise, company program

5. Participation requirements

Enrolled in the continuing education master's in Building Sustainability – Management Methods for Energy Efficiency (MBA) at TU Berlin. (1st-course semester)

6. Module can be taken in following programs

Continuing education master's in Building Sustainability – Management Methods for Energy Efficiency (MBA) at TU Berlin.

7. Workload and credits

3.2 hours per week of seminar-style lectures (in person)		48 h
1.6 hours per week of tutorials (in person)		24 h
0.8 hours per week of case studies and accompanying program		12 h
Preparation and follow-up incl. e-learning		156 h
Examination and exam preparation		30 h

This amounts to a workload of **270 hours** per semester, which is equivalent to 9 credits.

8. Module completion

Type of assessment: Ungraded portfolio

Students who do not pass may repeat at the beginning of the following semester by taking a graded written exam (duration: 120 minutes).

Task	Points
(Output evaluation) Written Test (duration: 60 minutes)	20
(Output evaluation) Business simulation - Presentation	40
(Output evaluation) Business simulation - Term paper	40

9. Module duration

The module can be completed in **one** semester.

10. Number of participants

Business I: Maximum number of participants: 90
Business II: Maximum number of participants: 30

11. Registration formalities

Students can register for the e-learning 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, provide link: On the Moodle platform for the program:
https://www.isis.tu-berlin.de/2.0/
The reading list is provided in the e-learning course on Moodle.

4. Legal Fundamentals

Module title: Legal Fundamentals	**Credit Points (ECTS):** 6	**Short title:** Law (BuSu)
Module supervisor: Prof. Dr. Jochen Mohr	**Office:** Laura Lehmann	**Email:** laura.lehmann.1@campus.tu-berlin.de

Module description

1. Module aims

This module is an introduction to legal principles and the legal framework for real estate at an international, European and national level.

Students will be able to use their own initiative to combine legal knowledge and skills in solving complex problems, evaluate cases independently and analyze and summarize legal situations.

The module **primarily** develops the following competencies (in %): Subject-specific competence [60] Methodological competence [20] Systems competence [10] Social competence [10]

2. Content

Principles of civil law, private and commercial law, administrative law, construction and planning law, real estate law

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Law I	IV	0.5	6	C	Winter semester
Law II	IV	1.6			
Law Tutorial	Tut	0.8			
Case studies and accompanying program	IV	0.5			

4. Description of course types

Integrated courses (IV) in the form of seminar-style lectures, e-learning course, and tutorial

5. Participation requirements

Enrolled in the continuing education master's in Building Sustainability – Management Methods for Energy Efficiency (MBA) at TU Berlin. (1st-course semester)

6. Module can be taken in following programs		
Continuing education master's in Building Sustainability – Management Methods for Energy Efficiency (MBA) at TU Berlin.		
7. Workload and credits		
2.1 hours per week of integrated courses (in person)		32 h
0.8 hours per week of tutorials (in person)		12 h
0.5 hours per week of case studies and company program		8 h
Preparation and follow-up incl. e-learning		48 h
Examination and exam preparation		80 h
This amounts to a workload of **180 hours** per semester, which is equivalent to **6 credits**.		
8. Module completion		
Graded Type of assessment: written exam One term paper (written, 10 pages, 10 days) will be set at the end of the module. Students who fail the exam may repeat it at the beginning of the following semester.		
9. Module duration		
The module can be completed in **one** semester.		
10. Number of participants		
Law I: Maximum number of participants: 90 Law II: Maximum number of participants: 30		
11. Registration formalities		
Students can register for the e-learning 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, provide link: On the Moodle platform for the program: https://www.isis.tu-berlin.de/2.0/ The reading list is provided in the e-learning course on Moodle.		

5. Management

Module title: Management	**Credit Points (ECTS):** 12	**Short title:** Management (BuSu)
Module supervisor: TBA	**Office:** Laura Lehmann	**Email:** laura.lehmann.1@campus.tu-berlin.de

Module description

1. Module aims

Students are able to independently identify, analyze, and design strategic approaches taking into account the consequences of environmental changes for planning, management, and controlling. They do this by incorporating interdependent technological, economic, business and legal processes in companies and organizations and taking into account social responsibility and sustainable development.

Students will be able to define the main features of management in the construction sector, apply problem-solving skills to case studies using different fields of knowledge and present options for optimizing the building sector.

The module **primarily** develops the following competencies (in %):
Subject-specific competence [20] Methodological competence [20] Systems competence [30] Social competence [30]

2. Content

Business models & plans, small group communication, leadership, environmental communication, corporate social responsibility (CSR), conflict management, change management, risk management; operational excellence, system services and links to the construction sector.

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Management I	IV	2.15	12	C	Summer semester
Management II	IV	2.15			
Business Communication	IV & Tut	2.1			
Case studies and accompanying program	IV	2			

4. Description of course types

Integrated courses (IV) in the form of seminar-style lectures, e-learning course, and tutorial

5. Participation requirements

Enrolled in the continuing education master's in Building Sustainability – Management Methods for Energy Efficiency (MBA) at TU Berlin. (2nd-course semester)

6. Module can be taken in following programs

Continuing education master's in Building Sustainability – Management Methods for Energy Efficiency (MBA) at TU Berlin.

7. Workload and credits

4.3 hours per week of seminar-style lectures (in person)		64 h
2.1 hours per week of tutorials (in person)		32 h
2 hours per week of case studies and accompanying program		30 h
Preparation and follow-up incl. e-learning		164 h
Examination and exam preparation		70 h

This amounts to a workload of **360 hours** per semester, which is equivalent to **12 credits**.

8. Module completion

Type of assessment: Graded Portfolio
Students who do not pass may repeat at the beginning of the following semester by taking a graded written exam (duration: 120 minutes).

Task	Points
(Output Evaluation) Business plan (term paper)	40
(Learning process evaluation) Oral presentation	20
(Output Evaluation) Written test	40

9. Module duration

The module can be completed in **one** semester.

10. Number of participants

Management I: Maximum number of participants: 90
Management II Maximum number of participants: 30

11. Registration formalities

Students can register for the e-learning 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, provide link: On the Moodle platform for the program:
https://www.isis.tu-berlin.de/2.0/
The reading list is provided in the e-learning course on Moodle.

6. Lecture series: Sustainable, energy-efficient conversion of building and neighborhood structures

Module title: Lecture series: Sustainable, energy-efficient conversion of building and neighborhood structures	**Credit Points (ECTS):** 6	**Short title:** Lecture Series (BuSu) :
Module supervisor: Prof. Julian Wékel	**Office:** Laura Lehmann	**Email:** laura.lehmann.1@campus.tu-berlin.de

Module description

1. Module aims

The students will be able to follow and identify key facts from expert presentations on the technological, economic, social, and environmental dimensions of problems in energy-focused planning and construction processes in individual buildings and across neighborhoods.

The module **primarily** develops the following competencies (in %):
Subject-specific competence [10] Methodological competence [20] Systems competence [10] Social competence [60]

2. Content

The lecture series "Sustainable, energy-efficient conversion of building and neighborhood structures" takes a cross-sectoral and interdisciplinary approach. Academics and practitioners with expertise in a variety of different disciplines will give talks on individual topics and issues relating to both content and process in the sustainable development of existing buildings and the structure of urban neighborhoods.

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Sustainable, energy-efficient conversion of building and neighborhood structures.	IV	3.2	6	C	Summer semester
Case studies and company program	IV	0.8			

4. Description of course types

Integrated courses (IV) often in the form of seminar-style lectures and e-learning course.

5. Participation requirements

Enrolled in the continuing education master’s in Building Sustainability – Management Methods for Energy Efficiency (MBA) at TU Berlin.

6. Module can be taken in following programs		
Continuing education master's in Building Sustainability – Management Methods for Energy Efficiency (MBA) at TU Berlin.		
7. Workload and credits		
3.2 hours per week of seminar-style lectures (in person)		48 h
0.8 hours per week of case studies and company program		12 h
Preparation and follow-up incl. e-learning		45 h
Examination and exam preparation		75 h
This amounts to a workload of **180 hours** per semester, which is equivalent to 6 credits.		
8. Module completion		
Students complete the module through active participation Graded: no Type of assessment: no assessment		
9. Module duration		
The module can be completed in **one** semester.		
10. Number of participants		
Maximum number of participants: 45		
11. Registration formalities		
Students can register for the e-learning 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, provide link: On the Moodle platform for the program: https://www.isis.tu-berlin.de/2.0/ The reading list is provided in the e-learning course on Moodle.		

7. Interdisciplinary Project

Module title: Interdisciplinary Project	**Credit Points (ECTS):** 12	**Short title:** IDP (BuSu)
Module supervisor: Prof. Dr. Tetyana Morozyuk	**Office:** Laura Lehmann	**Email:** laura.lehmann.1@campus.tu-berlin.de

Module description

1. Module aims

This module combines a number of subject-specific competencies in one project. The students will be able to evaluate and analyze buildings from an energy and economic perspective and implement new and innovative concepts in improvement and optimization strategies.

This module offers insights into the planning, implementation, and operation of technologies (software, communications, and hardware) in building monitoring, control, and automation, with a particular focus on energy management.

Students will gain a basic understanding of flexible and smart energy management in modern living environments. With the view of achieving a holistic energy balance, the students will develop a detailed knowledge of internal factors such as building configuration, user/usage, monitoring, control/automation, and decentralized generation. From the perspective of a smart building, they will also understand the relationship with external factors such as energy procurement, (regenerative) energy supply, legal and market frameworks for construction and operation.

Students will also gain a basic understanding of the thermophysical principles of HVAC systems and the role they play in the energy management of a building.

Graduates will be able to identify and assess the energy efficiency impact of options for smart building design and implementation, and compare these with other measures (e.g. smart heating compared with changes to the building envelope).

The module primarily develops the following competencies (in %):
Subject-specific competence [40] Methodological competence [20] Systems competence [20] Social competence [20]

2. Content

Energy audits, ventilation systems, smart building technology, principles of software and communications and their application in smart energy buildings - system architectures, protocols, bus systems/IP, modeling of smart buildings, state of the art in smart building management systems - monitoring, control, automation, smart buildings as building blocks of smart networks and cities - successful integration of future buildings into the technological, economic and regulatory environment, economic effects of energy-saving technologies.

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
IDP I (Introduction to Energy Surveying and Auditing)	IV	1.866	12	C	Winter semester/ summer semester
IDP II (Economic Aspects of Energy-Saving Technologies)	IV	1,866			
IDP III (HVAC Systems)	IV	1,866			
IDP IV (Smart Buildings)	IV	1,866			
IDP V (Project)	PJ	0.533			

4. Description of course types

Integrated courses (IV) in the form of seminar-style lectures, e-learning course, and tutorial

5. Participation requirements

Enrolled in the continuing education master's in Building Sustainability – Management Methods for Energy Efficiency (MBA) at TU Berlin. (2nd-course semester)

6. Module can be taken in following programs

Continuing education master's in Building Efficiency (MBA) at TU Berlin

7. Workload and credits

8 hours per week of seminar-style lectures (in person)		120 h
Preparation and follow-up		120 h
Examination and exam preparation		120 h

This amounts to a workload of **360 hours** per semester, which is equivalent to **12 credits**.

8. Module completion

Type of assessment: Graded portfolio
Students who do not pass may repeat at the beginning of the following semester by taking a graded written exam (duration: 240 minutes).

Task	Points
(Learning process evaluation) Project - Contribution to discussion	20
(Output evaluation) Oral presentation	30
(Output evaluation) Presentation materials / written composition (term paper)	50

9. Module duration

The module can be completed in **one** semester.

10. Number of participants
Maximum number of participants: 40
11. Registration formalities
Students can register for the e-learning 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, provide link: On the Moodle platform for the program: https://www.isis.tu-berlin.de/2.0/ The reading list is provided in the e-learning course on Moodle.

8. Compulsory elective modules

Two of the following modules must be selected:

1. Energy-Efficient Societies
2. Sustainable Urban Development
3. Integration of Renewable Energies
4. Technology and Innovation Management I
5. Technology and Innovation Management II

Module title: Compulsory elective: Efficiency Management A	**Credit Points (ECTS):** 6	**Short title:** Efficiency A (BuSu)
Module supervisor: Prof. Dr.-Ing. Joachim Müller-Kirchenbauer	**Office:** Sandra Lubahn	**Email:** Sandra.lubahn@campus.tu-berlin.de

Module description

1. Module aims

The students will be able to define, evaluate, and analyze technical projects and structures such as buildings, factories, and urban districts. They do this by incorporating interdependent technological, economic, business and legal processes in companies and organizations and taking into account social responsibility and sustainable development.

The module **primarily** develops the following competencies (in %):
Subject-specific competence [20] Methodological competence [20] Systems competence [30] Social competence [30]

2. Content

Buildings and energy efficiency; greenhouse gas emissions, demand-side management, combined heat and power generation, process chain management, energy efficiency technologies, amortization processes, local heating, and cooling networks, project management, ISO standards and, depending on the focus of studies, links to the energy, building or transport sector.

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester WS/SS)
Efficiency Management A	IV	2	6	CE	Summer semester
EM – Efficiency Management A	e-learning	1			
Case studies and accompanying program	IV	1			

4. Description of course types

Integrated courses (IV) in the form of seminar-style lectures, e-learning course, and tutorial

5. Participation requirements

Enrolled in one of the following continuing education master's: Energy Management (MBA), Building Sustainability (MBA) or Sustainable Mobility Management (MBA) at TU Berlin (3rd-course semester)

6. Module can be taken in following programs

Continuing education master's in Building Sustainability (MBA) at TU Berlin

7. Workload and credits

2 hours per week of seminar-style lectures (in person)		32 h
1 hour per week of e-learning		16 h
Case studies and accompanying program		15 h
Preparation and follow-up incl. e-learning		99.5 h
Examination and exam preparation		17.5 h

This amounts to a workload of **180 hours** per semester, which is equivalent to **6 credits**.

8. Module completion

Graded: no

Type of assessment: Portfolio

Students who do not pass may repeat at the end of the current semester by taking a graded written exam (2 h).

Task	Points
(Evaluation of learning process) Project - Contribution to discussion	25
(Evaluation of output) Oral presentation	50
(Evaluation of output) Presentation materials / written composition (term paper)	25

9. Module duration

The module can be completed in **one** semester.

10. Number of participants

Maximum number of participants: 40

11. Registration formalities

Students can register for the e-learning 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, provide link: On the Moodle platform for the program: https://www.isis.tu-berlin.de/2.0/

The reading list is provided in the e-learning course on Moodle.

Module title: Compulsory elective: Innovation Management A	**Credit Points (ECTS):** 6	**Short title:** Innovation Management A (BuSu)
Module supervisor: Dr. Maren Borkert	**Office:** Sandra Lubahn	**Email:** Sandra.lubahn@campus.tu-berlin.de

Module description

1. Module aims

The students will be able to define, evaluate and analyze innovations, team building and management processes, and administrative, financial and theoretical topics with special practical relevance. They will develop innovative business models in the energy sector. These models will incorporate interdependent technological, economic, business and legal processes in companies and organizations and will take into account social responsibility and sustainable development.

The module **primarily** develops the following competencies:
Subject-specific competence [20] Methodological competence [20] Systems competence [30] Social competence [30]

2. Content

Innovation management, technologically, economically and socially sustainable implementation of innovations, team building, and team management, innovation evaluation, systematic modeling; agile methods, software, synergy, innovation paths, venture teams, temporary task forces, restrictive vs. enabling monitoring; inter-organizational teams.

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Innovation Management A	IV	2	6	CE	Summer semester
BuSu – Innovation Management A	e-learning	1			
Case studies and accompanying program	IV	1			

4. Description of course types

Integrated course (IV) with e-learning components

5. Participation requirements

Enrolled in one of the following continuing education master's: Energy Management (MBA), Building Sustainability (MBA) or Sustainable Mobility Management (MBA) at TU Berlin (3rd-course semester)

6. Module can be taken in following programs

Continuing education master's in Building Sustainability (MBA) at TU Berlin

7. Workload and credits

2 hours per week of seminar-style lectures (in person)		32 h
1 hour per week of e-learning		16 h
1 hour per week of case studies and accompanying program		15 h
Preparation and follow-up incl. e-learning		99.5 h
Examination and exam preparation		17.5 h

This amounts to a workload of **180 hours** per semester, which is equivalent to **6 credits**.

8. Module completion

Graded: no
Type of assessment: Portfolio
Students who do not pass may repeat at the end of the current semester by taking a graded written exam (2 h).

Task	Points
(Evaluation of learning process) Project - Contribution to discussion	25
(Evaluation of output) Oral presentation	50
(Evaluation of output) Presentation materials / written composition (term paper)	25

9. Module duration

This module takes place during the second and third semesters.

10. Number of participants

Maximum number of participants: 40

11. Registration formalities

Students can register for the e-learning 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, provide link: On the Moodle platform for the program: https://www.isis.tu-berlin.de/2.0/
The reading list is provided in the e-learning course on Moodle.

Module title: Compulsory elective: Efficiency Management B	**Credit Points (ECTS):** 6	**Short title:** Efficiency Management B (BuSu)
Module supervisor: Prof. Dr.-Ing. Joachim Müller-Kirchenbauer	**Office:** Sandra Lubahn	**Email:** Sandra.lubahn@campus.tu-berlin.de

Module description

1. Module aims

The students will be able to define, evaluate, and analyze technical projects and structures such as buildings, factories, and urban districts. They do this by incorporating interdependent technological, economic, business, and legal processes in companies and organizations and taking into account social responsibility and sustainable development.

The module primarily develops the following competencies (in %):
Subject-specific competence [20] Methodological competence [20] Systems competence [30] Social competence [30]

2. Content

Buildings and energy efficiency; greenhouse gas emissions, demand-side management, combined heat and power generation, process chain management, energy efficiency technologies, amortization processes, local heating, and cooling networks, project management, ISO standards and, depending on the focus of studies, links to the energy, building or transport sector.

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Efficiency Management B	IV	2	6	CE	Winter semester
BuSu – Efficiency Management B	e-learning	1			
Case studies and accompanying program	IV	1			

4. Description of course types

Integrated courses (IV) in the form of seminar-style lectures, e-learning course, and tutorial

5. Participation requirements

Enrolled in one of the following continuing education master's: Energy Management (MBA), Building Sustainability (MBA) or Sustainable Mobility Management (MBA) at TU Berlin (3rd-course semester)

6. Module can be taken in following programs

Continuing education master's in Building Sustainability (MBA) at TU Berlin

7. Workload and credits

2 hours per week of seminar-style lectures (in person)		32 h
1 hour per week of e-learning		16 h
1 hour per week of case studies and accompanying program		15 h
Preparation and follow-up incl. e-learning		99.5 h
Examination and exam preparation		17.5 h

This amounts to a workload of **180 hours** per semester, which is equivalent to **6 credits**.

8. Module completion

Graded: no
Type of assessment: Portfolio
Students who do not pass may repeat at the end of the current semester by taking a graded written exam (2 h).

Task	Points
(Learning process evaluation) Project - Contribution to discussion	25
(Output evaluation) Oral presentation	50
(Output evaluation) Presentation materials / written composition (term paper)	25

9. Module duration

The module can be completed in **one** semester.

10. Number of participants

Maximum number of participants: 40

11. Registration formalities

Students can register for the e-learning 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, provide link: On the Moodle platform for the program: https://www.isis.tu-berlin.de/2.0/
The reading list is provided in the e-learning course on Moodle.

Module title: Compulsory elective: Innovation Management B	**Credit Points (ECTS):** 6	**Short title:** Innovation Management B (BuSu)
Module supervisor: Dr. Maren Borkert	**Office:** Sandra Lubahn	**Email:** Sandra.lubahn@campus.tu-berlin.de

Module description

1. Module aims

The students will be able to define, evaluate and analyze innovations, team building and management processes, and administrative, financial and theoretical topics with special practical relevance. They will develop innovative business models in the energy sector. These models will incorporate interdependent technological, economic, business and legal processes in companies and organizations and will take into account social responsibility and sustainable development.

The module **primarily** develops the following competencies:
Subject-specific competence [20] Methodological competence [20] Systems competence [30] Social competence [30]

2. Content

Innovation management, technologically, economically and socially sustainable implementation of innovations, team building, and team management, innovation evaluation, systematic modeling; agile methods, software, synergy, innovation paths, venture teams, temporary task forces, restrictive vs. enabling monitoring; inter-organizational teams.

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Innovation Management B	IV	2	6	CE	Winter semester
BuSu – Innovation Management B	e-learning	1			
Case studies and accompanying program	IV	1			

4. Description of course types

Integrated course (IV) with e-learning components

5. Participation requirements

Enrolled in one of the following continuing education master's: Energy Management (MBA), Building Sustainability (MBA) or Sustainable Mobility Management (MBA) at TU Berlin (3rd-course semester)

6. Module can be taken in following programs

Continuing education master's in Building Sustainability (MBA) at TU Berlin

7. Workload and credits

2 hours per week of seminar-style lectures (in person)		32 h
1 hour per week of e-learning		16 h
1 hour per week of case studies and accompanying program		15 h
Preparation and follow-up incl. e-learning		99.5 h
Examination and exam preparation		17.5 h

This amounts to a workload of **180 hours** per semester, which is equivalent to **6 credits**.

8. Module completion

Graded: no
Type of assessment: Portfolio
Students who do not pass may repeat at the end of the current semester by taking a graded written exam (2 h).

Task	Points
(Learning process evaluation) Project - Contribution to discussion	25
(Output evaluation) Oral presentation	50
(Output evaluation) Presentation materials / written composition (term paper)	25

9. Module duration

This module takes place during the second and third semesters.

10. Number of participants

Maximum number of participants: 40

11. Registration formalities

Students can register for the e-learning 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, provide link: On the Moodle platform for the program: https://www.isis.tu-berlin.de/2.0/
The reading list is provided in the e-learning course on Moodle.

Module title: Compulsory elective: Energy-Efficient Societies	**Credit Points (ECTS):** 6	**Short title:** BuSu - EES
Module supervisor: Dr. Caroline Schröder	**Office:** Laura Lehmann	**Email:** laura.lehmann.1@campus.tu-berlin.de

Module description

1. Module aims

The aim of energy-efficient buildings is embedded in specific socio-economic discourses. The idea of energy efficiency can, therefore, be understood differently according to the social and cultural context.

This module examines different understandings of energy efficiency and its consequences for project managers (i.e. students of this master's program), other building and energy experts, users and society.

Students also gain knowledge and skills for dealing with different target groups and reflecting on their own projects that have been developed in other courses or introduced in practice-based lecture series.

The module **primarily** develops the following competencies:
Subject-specific competence [10] Methodological competence [20] Systems competence [10] Social competence [60]

2. Content

Students taking this module will

- be introduced to different ways of understanding energy efficiency in a more global context
- learn about the social consequences of energy efficiency
- learn more about the different roles and professional profiles for students
- analyze good and bad project management practices, including in their own project work
- acquire skills to deal with complex and diverse target groups (i.e. peer experts, contractors, users in different project contexts)
- acquire conflict management skills (communication, participation, and cooperation)

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Energy-Efficient Societies	IV*	2.9	6	C	Winter semester
Case studies and company program	IV	1.1			

4. Description of course types

IV* = Integrated course

Lectures and exercises on individual topics will be grouped in blocks so that there will be plenty of opportunities for in-depth study. Overall, the first phase will serve to build up the theoretical basis before it is applied to practice.

5. Participation requirements

Enrolled in one of the following continuing education master's: Energy Management (MBA), Building Sustainability (MBA) or Sustainable Mobility Management (MBA) at TU Berlin (3rd-course semester)

6. Module can be taken in following programs

Continuing education master's in Energy Management (MBA), Building Sustainability (MBA) or Sustainable Mobility Management (MBA) at TU Berlin.

7. Workload and credits

3 hours per week of seminar-style lectures (in person)		44h
1 hour per week of case studies and company program		16 h
Preparation and follow-up incl. e-learning		45 h
Examination and exam preparation		75 h

This amounts to a workload of **180 hours** per semester, which is equivalent to **6 credits**.

8. Module completion

Graded: no
Type of assessment: Portfolio
Students who do not pass may repeat at the end of the current semester by taking a graded written exam (2 h).

Task	Points
(Learning process evaluation) Oral discussion	20
(Output evaluation) Oral presentation	60
(Output evaluation) Presentation materials / written composition (term paper)	20

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 e-learning 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, provide link: On the Moodle platform for the program: https://www.isis.tu-berlin.de/
The reading list is provided in the e-learning course on Moodle.

Module title: Compulsory elective: Sustainable Urban Development	**Credit Points (ECTS):** 6	**Short title:** BuSu – Urban Sustainability
Module supervisor: TBD	**Office:** Laura Lehmann	**Email:** laura.lehmann.1@campus.tu-berlin.de

Module description

1. Module aims

This module offers an insight into urban sustainability by using sustainable design thinking tools to address real-world challenges in the urban context, as well as to understand and work with stakeholders, interest groups, residents, architects, and communities.

Students will gain an understanding of the many different levels in this field, including spatial land use, environmental and climate impacts, and the social and economic consequences of urban planning. Graduates will understand the influences across urbanization, spatial use patterns and mobility in sustainable cities.

The module **primarily** develops the following competencies:
Subject-specific competence [50] Methodological competence [30] Systems competence [20] Social competence [0]

2. Content

Challenges, strategies, and mechanisms of urban planning, design thinking concepts, analysis of problems of the "city", dealing with stakeholders with different interests, spatial planning, minimizing effects and development of project management capabilities.

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Urban Sustainability	IV*	2.9	6	C	Winter semester
Case studies and company program	IV	1.1			

4. Description of course types

IV* = Integrated course. Lectures and exercises on individual topics will be grouped in blocks so that there will be plenty of opportunities for in-depth study.
Overall, the first phase will serve to build up the theoretical basis before it is applied to practice.

5. Participation requirements

Enrolled in one of the following continuing education master's: Energy Management (MBA), Building Sustainability (MBA) or Sustainable Mobility Management (MBA) at TU Berlin (3rd-course semester)

6. Module can be taken in following programs

Continuing education master's in Energy Management (MBA), Building Sustainability (MBA) or Sustainable Mobility Management (MBA) at TU Berlin.

7. Workload and credits

3 hours per week of seminar-style lectures (in person)		44h
1 hour per week of case studies and company program		16 h
Preparation and follow-up incl. e-learning		45 h
Examination and exam preparation		75 h

This amounts to a workload of **180 hours** per semester, which is equivalent to **6 credits**.

8. Module completion

Graded: no
Type of assessment: Portfolio
Students who do not pass may repeat at the end of the current semester by taking a graded written exam (2 h).

Task	Points
(Learning process evaluation) Oral discussion	20
(Output evaluation) Oral presentation	60
(Output evaluation) Presentation materials / written composition (term paper)	20

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 e-learning 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, provide link: On the Moodle platform for the program: https://www.isis.tu-berlin.de/2.0/
The reading list is provided in the e-learning course on Moodle.

Module title: Compulsory elective: Integration of Renewable Energies	**Credit Points (ECTS):** 6	**Short title:** BuSu - IRE
Module supervisor: TBD	**Office:** Laura Lehmann	**Email:** laura.lehmann.1@campus.tu-berlin.de

Module description

1. Module aims

This module revisits and broadens students' knowledge of energy technologies and systems in the context of today's changing world, preparing the foundation for the coming modules. Students are taught to apply this knowledge independently to selected cases.

The module **primarily** develops the following competencies:
Subject-specific competence [60] Methodological competence [10] Systems competence [30] Social competence [0]

2. Content

Students will gain a basic understanding of the applications and limitations of renewable energy sources in a building environment. In this context, students will develop academic research skills in the field of the design of energy supply systems for buildings and neighborhoods based on renewable energy sources and their interaction with conventional/fossil resources.

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) Compulsory elective (CE)	Semester (WS/SS)
Integration of renewable energies	IV*	2.933	6	C	Winter semester
Case studies and company program	IV	1.066			

4. Description of course types

IV* = Integrated course. Lectures and exercises on individual topics will be grouped in blocks so that there will be plenty of opportunities for in-depth study.

5. Participation requirements

Enrolled in one of the following continuing education master's: Energy Management (MBA), Building Sustainability (MBA) or Sustainable Mobility Management (MBA) at TU Berlin (3rd-course semester)

6. Module can be taken in following programs

Continuing education master's in Energy Management (MBA), Building Sustainability (MBA) or Sustainable Mobility Management (MBA) at TU Berlin.

7. Workload and credits

3 hours per week of seminar-style lectures (in person)		44 h
1 hour per week of case studies and company program		16 h
Preparation and follow-up incl. e-learning		45 h
Examination and exam preparation		75 h

This amounts to a workload of **180 hours** per semester, which is equivalent to **6 credits**.

8. Module completion

Graded: no
Type of assessment: Portfolio
Students who do not pass may repeat at the end of the current semester by taking a graded written exam (2 h).

Task	Points
(Learning process evaluation) Oral discussion	20
(Output evaluation) Oral presentation	60
(Output evaluation) Presentation materials / written composition (term paper)	20

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 e-learning 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, provide link: On the Moodle platform for the program: https://www.isis.tu-berlin.de/2.0/
The reading list is provided in the e-learning course on Moodle.

Application and Admission Regulations for the International Continuing Education Master's Program in Building Sustainability – Management Methods for Energy Efficiency at TU-Campus EUREF of Technische Universität Berlin

of 23 October 2018

On 23 October 2018, the Joint Decision-Making Committee of TU-Campus EUREF of Technische Universität Berlin adopted the following Application and Admission Regulations for the continuing education master's program in Building Sustainability – Management Methods for Energy Efficiency (MBA) in accordance with Section 43 (3) no. 3 of the Constitution of Technische Universität Berlin and Section 10 (5) of the Berlin State Higher Education Act (*Berliner Hochschulgesetz – BerlHG*) in the version of 26 July 2011 (Berlin Gazette of Laws and Ordinances [*GVBl.*], p. 378), last amended by Article 6 of the same Act of 2 February 2018 (Berlin Gazette of Laws and Ordinances, p. 160), in conjunction with Section 10 of the Act on the Admission to Higher Education Institutions in the State of Berlin to Degree Programs with Restricted Admission (*Berliner Hochschulzulassungsgesetz – BerlHZG*) in the version of 18 June 2005 (Berlin Gazette of Laws and Ordinances, p. 393), last amended by Article I of the same Act of 26 June 2013 (Berlin Gazette of Laws and Ordinances, p. 198.)[*]

Overview of Content

I. General regulations

Section 1 – Scope of application

These Application and Admission Regulations – in conjunction with the Regulations Governing General Study and Examination Procedures (AllgStuPO) and the Statutes of Technische Universität Berlin Governing University Selection Procedures (AuswahlSa), as amended from time to time – govern the application, admission and selection modalities for the continuing education master's program in Building Sustainability – Management Methods for Energy Efficiency (MBA). The provisions of the AllgStuPO and AuswahlSa shall take precedence over the provisions of these Application and Admission Regulations unless exceptions are expressly permitted therein.

Section 2 – Entry into force/expiration

(1) These Regulations shall enter into force on the day after their publication in the Official Gazette of Technische Universität Berlin. They shall be applied for the first time to the procedures of the 2019/2020 winter semester.

(2) The Application and Admission Regulations of October 30, 2015 (TU Official Gazette 14/2016, p.129) will no longer apply once the present regulations take effect.

II. Application

Section 3 – Application requirements

The entry requirements are

1. a bachelor's or equivalent university degree

and

2. suitable practical professional experience of generally no less than one year following the degree

Section 4 – Procedure

The fulfillment of the admission requirements must be proven during the enrollment procedure in accordance with Sections 16ff. of the Regulations Governing General Study and Examination Procedures (AllgStuPO), in cases outlined in Section 15 of the AllgStuPO as part of the application for admission. Supporting documents must be submitted in the original or in an officially certified form.

III. Admission

Section 5 – Restriction of the number of eligible candidates

The number of eligible candidates for the selection process can be restricted. It must be at least double the designated number of admissions. The selection criterion for participation in the selection process is the applicants' qualification level. The selection committee decides on any restriction, the number of eligible candidates, and their selection at the beginning of the selection process.

Section 6 – Ranking criteria

(1) A ranking of applicants shall be prepared according to the following selection criteria:

1. overall grade in the study program in accordance with Section 3 no.1
2. Test result of the Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE) or assessment according to Section 6 (3), Sentence 7f
3. Subject-specific eligibility of the previous degree
4. For each practical professional experience (for which evidence has been provided) lasting at least six months and following a bachelor's or equivalent university degree:
5. Level of English language proficiency for which evidence has been provided
6. Motivation and reasons for applying for the master's program and overall impression of the application documents submitted

[*] approved by the Executive Board of TU Berlin on March 1, 2019 and by the Senate Chancellery for Science and Research on April 4, 2019

(2) For the criterion according to Subsection 1, no. 1, up to 100 points shall be awarded according to the following table:

Grade	Points	Grade	Points
1.0	100	2.6	52
1.1	97	2.7	49
1.2	94	2.8	46
1.3	91	2.9	43
1.4	88	3.0	40
1.5	85	3.1	37
1.6	82	3.2	34
1.7	79	3.3	31
1.8	76	3.4	28
1.9	73	3.5	25
2.0	70	3.6	22
2.1	67	3.7	19
2.2	64	3.8	16
2.3	61	3.9	13
2.4	58	4.0	10
2.5	55		

If it is not possible to determine equivalent grades for foreign university qualifications even after consulting the decisions on grade equivalence of the Central Office for Foreign Education at the Standing Conference of the Ministers of Education and Cultural Affairs, points will be awarded according to the following table:

Grade	Points
1.0 to under 1.5	100
1.6 to under 2.5	70
2.6 to under 3.5	40
3.6 to under 4.0	10

(3) For the criterion outlined in Subsection 1, no. 2, up to 100 points will also be awarded in accordance with the regulation in Section 6 (2).

The GMAT Total Score (GMATS) is converted into a grade according to the following formula:

Grade = (4-3*(GMATS-400)/400)

For the calculated grade (rounded to the nearest tenth) points are awarded according to the table in Subsection 2. If the GMAT Total Score is below 400, the sub-grade is 4.0.

If a GRE test result is given, it will be converted into a GMAT Total Score. The conversion is carried out using the official conversion tool, the GRE® Comparison Tool for Business Schools.

If no test result is submitted, the selection committee will award a grade based on the scope and quality of previous academic achievements in the methodological subjects for which evidence is provided (mathematics, statistics, econometrics, microeconomics). This is based on the ECTS-weighted average grade of the methodological subjects.

(4) For the criterion outlined in Subsection 1, no. 3, points will be awarded in accordance with the following arrangement:

1. up to 200 points for degree programs in industrial engineering (specialization in construction), civil engineering, building technology, urban and land-use planning, and architecture
2. up to 150 for degree programs in economics, industrial engineering (in specializations other than those mentioned under 1) and sustainability sciences,
3. up to 100 points for degree programs where the curriculum included modules related to economics, engineering, law or environmental studies,
4. 50 points for all other degree programs

(5) For the criterion outlined in Subsection 1, no. 4, points will be awarded in accordance with the following arrangement:

1. for each qualified professional activity in the fields of building or project planning and management (technical, architectural, urban planning), or real estate management: 40 points (for every 6 months)
2. for each qualified professional activity in the fields of sustainability and environmental management: 30 points (for every 6 months)
3. for each qualified professional activity in other technical, legal and/or economic fields: 10 points (for every 6 months)
4. 0 points for all other professional experience.

(6) For the criterion outlined in Subsection 1, no. 5, points shall be awarded in accordance with the following arrangement:

Level according to the Common European Framework of Reference for Languages	**Points**
C2 and higher	80
C1	60
B2	40
B1	10
A2 or lower	0

(7) For the criterion outlined in Subsection 1, no. 6, up to 100 points will be awarded. The following aspects will be taken into account when awarding these points:

1. Motivation or reasons for the application to the program in the form of a max. two-page letter of motivation. Up to 50 points can be awarded for this.
2. Information on the focus of previous studies, the professional experience already gained and the academic and/or professional plans for the future. Up to 30 points can be awarded for this
3. Overall impression of the application documents submitted, in particular with regard to the information provided in the curriculum vitae and other documents (letters of recommendation, etc.). Up to 20 points can be awarded for this.

Section 7 – **Procedure**

(1) Proof of fulfillment of the selection criteria must be provided when submitting the application for admission. To this purpose, applicants must include the following documents:

1. The documents requested in the application form.
2. Evidence that the admission requirements in accordance with Section 3 are met.
3. Evidence of the areas of focus of the course of studies (where these are not stated in the certificate), generally in the form of a diploma supplement, transcript or module descriptions.
4. Relevant evidence of the selection criteria outlined in Section 6 (in particular the letter of motivation, CV, level of English).

(2) For each selection criterion, the selection committee shall

award points in accordance with Section 6 (2) to (7).

(3) The selection committee shall rank the applicants in order of preference. The list documents the following for each participant in the selection process:

1. Number of points achieved for each criterion.
2. Total number of points.
3. Decision on selection (admission or rejection)

(4) Selected applicants receive prompt notification along with a deadline for providing written acceptance of the place in the program and for enrollment. If the applicant does not accept the place within the deadline, it is offered to the next candidate on the list.

(5) Applicants who are not admitted to the program receive notification of rejection, with reasons.

Section 8 – **Capacity and application deadline**

(1) The number of program places available is limited to 30 per year unless Technische Universität Berlin publishes other decisions on capacity in the Official Gazette of Technische Universität Berlin.

(2) The application deadline is April 30 of each year, unless Technische Universität Berlin publishes other deadlines in the Official Bulletin of Technische Universität Berlin.