Building Sustainability - Management Methods for Energy Efficiency (MBA)

Appendix to the Study and Examination Regulations

Appendix 1: Module Catalog

Appendix 2: Sample Course Schedule

Appendix 3: Module Descriptions

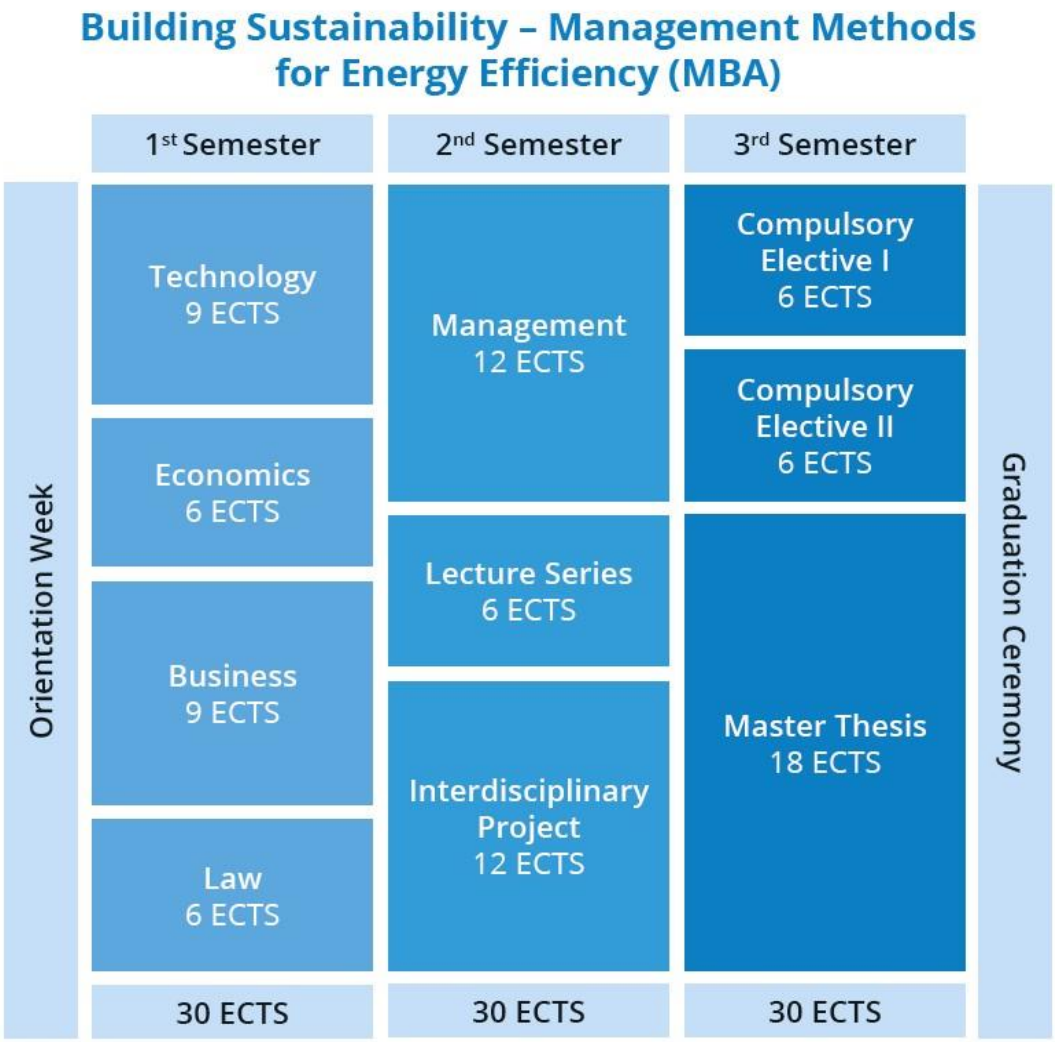
Appendix 1: Module Catalog

N⁰	Module	CP	Type of assessment	Graded	Weighting in overall grade
	Compulsory modules				
1	Technological Fundamentals	9	Written (examination)	Yes	1
2	Economics Fundamentals	6	Written (examination)	Yes	1
3	Business Fundamentals	9	Portfolio	No	-
4	Legal Fundamentals	6	Written (term paper)	Yes	1
5	Management	12	Portfolio	Yes	1
6	Lecture series: “Sustainable, energy-efficient conversion of building and neighborhood structures”	6	Active Participation	No	-
7	Interdisciplinary Project	12	Portfolio	Yes	1
8	Master Thesis	18	Master Thesis	Yes	1
Compulsory elective modules		Choose two from list			
E- BuSu 1	User-Centered Business Model Innovation & Research	6	Portfolio	No	-
E- BuSu 2	Energy-Efficient Societies	6	Portfolio	No	-
E- BuSu 3	Integration of Renewable Energies	6	Portfolio	No	-
E- EM 1	Efficiency Management	6	Portfolio	No	-
E- EM 2	Rural Electrification	6	Portfolio	No	-
E- EM 3	Project Management Skills – Managing (Agile) Projects and Product Development	6	Portfolio	No	-
E- SuMo 1	Business Models and Investments in Sustainable Mobility	6	Portfolio	No	-
E- SuMo 2	Data Analysis and ICT in Mobility	6	Portfolio	No	-
E- SuMo 3	Urban and Transport Planning in Emerging Economies: Concepts and Experiences	6	Portfolio	No	-
	∑	90			

* 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 (4) of the Regulations Governing Study and Examination Procedures (AllgStuPO)).

** 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.

Appendix 2: Sample Course Schedule



Appendix 3: Module Descriptions

Technological Fundamentals

1

Module title:	ECTS credit points:	Short title:
Technological Fundamentals	9	Technology
Module supervisor:	**Office:**	**E-Mail:**
Prof. Dr.-Ing. Joachim Müller-Kirchenbauer Prof. Dr.-Ing. M. Norbert Fisch	Laura Lehmann	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.

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.

Technological Fundamentals

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) or Compulsory elective (CE)	Semester (Winter / Summer)
Technology I	IV	1,1	9	C	Winter semester
Technology II	IV	2,1			
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 program Building Sustainability – Management Methods for Energy Efficiency (MBA) at TU Berlin (1st semester).

6. Module can be taken in following programs

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

7. Workload and credits	**Total Hours**
3,2 hours per week of seminar-style lectures (in person)	48
1,6 hours per week of tutorials (in person)	24
1,6 hours per week of case studies and accompanying program	24
Preparation and follow-up incl. e-learning	128
Examination and exam preparation	46

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

8. Module completion

Graded Module
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.

Technological Fundamentals

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 If yes, provide a 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.

Economics Fundamentals

2

Module title:	**ECTS credit points:**	**Short title:**
Economics Fundamentals	6	Economics
Module supervisor:	**Office:**	**E-Mail:**
Prof. Dr. Georg Erdmann Prof. Dr.-Ing. Nicole Riediger	Laura Lehmann	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 can employ specialized knowledge and aspects of economics and compare general and selected cases from the construction sector.

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, the 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.

Economics Fundamentals

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) or Compulsory elective (CE)	Semester (Winter / Summer)
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	0,5			

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 program Building Sustainability – Management Methods for Energy Efficiency (MBA) at TU Berlin (1st semester).

6. Module can be taken in following programs

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

7. Workload and credits	**Total Hours**
2,7 hours per week of seminar-style lectures (in person)	40
2,1 hours per week of tutorials (in person)	32
0,5 hours per week of case studies and accompanying program	8
Preparation and follow-up incl. e-learning	82
Examination and exam preparation	18

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

8. Module completion

Graded Module
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.

Economics Fundamentals

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 a 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.

Business Fundamentals

3

Module title:	**ECTS credit points:**	**Short title:**
Business Fundamentals	9	Business
Module supervisor:	**Office:**	**E-Mail:**
Prof. Dr. Dodo zu Knyphausen-Aufseß	Laura Lehmann	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.

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.

Business Fundamentals

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) or Compulsory elective (CE)	Semester (Winter / Summer)
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	1,1			

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 program Building Sustainability – Management Methods for Energy Efficiency (MBA) at TU Berlin (1st semester).

6. Module can be taken in following programs

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

7. Workload and credits	**Total Hours**
3,2 hours per week of seminar-style lectures (in person)	48
1,6 hours per week of tutorials (in person)	24
1,1 hours per week of case studies and accompanying program	16
Preparation and follow-up incl. e-learning	152
Examination and exam preparation	30

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

8. Module completion

Ungraded Module
Type of assessment: 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 and Point allocation:
(Output evaluation) Written Test (duration: 60 minutes), 20
(Output evaluation) Business simulation – Presentation, 40

9. Module duration

The module can be completed in one semester.

Business Fundamentals

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 a 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.

Legal Fundamentals

4

Module title:	ECTS credit points:	Short title:
Legal Fundamentals	6	Law
Module supervisor:	**Office:**	**E-Mail:**
Prof. Dr. Dr. Dres. h.c. Franz Jürgen Säcker	Laura Lehmann	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.

2. Content

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

Legal Fundamentals

3. Module components					
Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) or Compulsory elective (CE)	Semester (Winter / Summer)
Law I	IV	0,5	6	C	Winter semester
Law II	IV	1,6			
Law Tutorium	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, tutorial and excursions.

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

6. Module can be taken in following programs
Continuing education master's program Building Sustainability - Management Methods for Energy Efficiency (MBA) at TU Berlin.

7. Workload and credits	**Total Hours**
2,1 hours per week of seminar-style lectures (in person)	32
0,8 hours per week of tutorials (in person)	12
0,5 hours per week of case studies and accompanying program	8
Preparation and follow-up incl. e-learning	48
Examination and exam preparation	80

This amounts to a workload of 180 hours per semester, which is equivalent to 6 credits.
8. Module completion
Graded Module 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.

Legal Fundamentals

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 a 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.

Management

5

Module title:	**ECTS credit points:**	**Short title:**
Management	12	Management
Module supervisor:	**Office:**	**E-Mail:**
Prof. Dr. Søren Salomo	Laura Lehmann	laura.lehmann.1@campus.tu-berlin.de

Module description

1. Module aims

Students can 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.

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.

Management

3. Module components					
Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) or Compulsory elective (CE)	Semester (Winter / Summer)
Management I	IV	2,2	12	C	Summer semester
Management II	IV	2,2			
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, tutorial and excursions.

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

6. Module can be taken in following programs
Continuing education master's program Building Sustainability - Management Methods for Energy Efficiency (MBA) at TU Berlin.

7. Workload and credits	**Total Hours**
4,4 hours per week of seminar-style lectures (in person)	64
2,1 hours per week of tutorials (in person)	32
2 hours per week of case studies and accompanying program	30
Preparation and follow-up incl. e-learning	164

Examination and exam preparation	70

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

8. Module completion

Graded Module
Type of assessment: 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 and point allocation:
(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.

Management

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 a 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.

Lecture series: “Sustainable, energy-efficient conversion of building and neighborhood structures”

6

Module title:	**ECTS credit points:**	**Short title:**
Lecture series: “Sustainable, energy-efficient conversion of building and neighborhood structures”	6	Lecture Series (BuSu)
Module supervisor:	**Office:**	**E-Mail:**
Prof. Julian Wékel	Laura Lehmann	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.

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.

Lecture series: “Sustainable, energy-efficient conversion of building and neighborhood structures”

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) or Compulsory elective (CE)	Semester (Winter / Summer)
Lecture series	IV	3,2	6	C	Summer semester
Case studies and accompanying program	IV	0,8			

4. Description of course types
Integrated courses (IV) often in the form of seminar-style lectures.
5. Participation requirements
Enrolled in the continuing education master's program Building Sustainability – Management Methods for Energy Efficiency (MBA) at TU Berlin (2nd semester).
6. Module can be taken in following programs
Continuing education master's program Building Sustainability - Management Methods for Energy Efficiency (MBA) at TU Berlin.

7. Workload and credits	**Total Hours**
3,2 hours per week of seminar-style lectures (in person)	48
0,8 hours per week of case studies and accompanying program	12
Preparation and follow-up incl. e-learning	45
Examination and exam preparation	75

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

8. Module completion
Ungraded Module Type of assessment: Students complete the module through active participation
9. Module duration
The module can be completed in one semester.

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

10. Number of participants
Lecture series : 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 a 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.

Interdisciplinary Project

7

Module title:	**ECTS credit points:**	**Short title:**
Interdisciplinary Project	12	IDP
Module supervisor:	**Office:**	**E-Mail:**
Prof. Dr. Tetyana Morozyuk	Laura Lehmann	laura.lehmann.1@campus.tu-berlin.de
Module description		

1. Module aims

This module combines several 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).

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.

Interdisciplinary Project

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) or Compulsory elective (CE)	Semester (Winter / Summer)
IDP I	IV	1,9	12	C	Summer semester
IDP II	IV	1,9			
IDP III	IV	1,9			
IDP IV	IV	1,9			

IDP V	PW	0,5			

4. Description of course types

Integrated courses (IV) in the form of seminar-style lectures, project work, tutorials and excursions.

5. Participation requirements

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

6. Module can be taken in following programs

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

7. Workload and credits	**Total Hours**
8 hours per week of seminar-style lectures (in person)	120
Preparation and follow-up incl. e-learning	120
Examination and exam preparation	120

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

8. Module completion

Graded Module
Type of assessment: 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 and point allocation:
(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.

Interdisciplinary Project

10. Number of participants

IDP I : 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 a 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.

User-Centered Business Model Innovation & Research

E- BuSu 1

Module title:	**ECTS credit points:**	**Short title:**
User-Centered Business Model Innovation & Research	6	BMIR
Module supervisor:	**Office:**	**E-Mail:**
Dr. Maren Borkert	Laura Lehmann	laura.lehmann.1@campus.tu-berlin.de

Module description
1. Module aims
The User-Centered Business Model Innovation & Research module is an interdisciplinary project that awards 6 ECTS for one semester. The course offers theoretical input sessions on innovation management, project management, team building, user-centered business model development, and methods of business research. Using innovative design thinking and lean startup methods, the students apply this knowledge independently to the development of their business idea. With an entrepreneurial spirit, the teams work with various interest groups (industry, government, and startups).
2. Content
Innovation management basics, open & user innovation, team building, and team management, innovation assessment, agile and lean startup methods, data analysis software, business research methods, user-centered business modeling.

User-Centered Business Model Innovation & Research

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) or Compulsory elective (CE)	Semester (Winter / Summer)
BMIR	IV	2,9	6	CE	Winter semester

Case studies and accompanying program	IV	1,1			

4. Description of course types

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)
In the event of high demand, students of the advanced training master "Building Sustainability (MBA)" have priority.

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	**Total Hours**
2,9 hours per week of seminar-style lectures (in person)	44
1,1 hours per week of case studies and accompanying program	16
Preparation and follow-up incl. e-learning	90
Examination and exam preparation	30

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

8. Module completion

Graded Module
Type of assessment: Portfolio
Students who do not pass may repeat at the end of the current semester by taking a graded written exam (120 minutes).
Task and point allocation
(Learning process evaluation) Project - Contribution to discussion, 25
(Output evaluation) Oral presentation, 50
(Output evaluation) Presentation materials / written composition (term paper, 5-10 pages), 25

9. Module duration

The module can be completed in one semester.

User-Centered Business Model Innovation & Research

10. Number of participants

BMIR : Maximum number of participants: 25

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 a 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.

Energy-Efficient Societies

E- BuSu 2

Module title:	**ECTS credit points:**	**Short title:**
Energy-Efficient Societies	6	EES
Module supervisor:	**Office:**	**E-Mail:**

Dr. Caroline Schröder	Laura Lehmann	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.

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)

Energy-Efficient Societies

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) or Compulsory elective (CE)	Semester (Winter / Summer)

EES	IV	2,9	6	CE	Winter semester
Case studies and accompanying program	IV	1,1			

4. Description of course types

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)
In the event of high demand, students of the advanced training master "Building Sustainability (MBA)" have priority.

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	**Total Hours**
2,9 hours per week of seminar-style lectures (in person)	44
1,1 hours per week of case studies and accompanying program	16
Preparation and follow-up incl. e-learning	90
Examination and exam preparation	30

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

8. Module completion

Graded Module
Type of assessment: Portfolio
Students who do not pass may repeat at the end of the current semester by taking a graded written exam (120 minutes).
Task and point allocation
(Learning process evaluation) Project - Contribution to discussion, 25
(Output evaluation) Oral presentation, 50
(Output evaluation) Presentation materials / written composition (term paper, 5-10 pages), 26

9. Module duration

The module can be completed in one semester.

Energy-Efficient Societies

10. Number of participants

EES : Maximum number of participants: 25

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 a 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.

Integration of Renewable Energies

E- BuSu 3

Module title:	**ECTS credit points:**	**Short title:**

Integration of Renewable Energies	6	IRE
Module supervisor:	**Office:**	**E-Mail:**
Dipl.-Ing. Martin Schnauss	Laura Lehmann	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.

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.

Integration of Renewable Energies

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) or Compulsory elective (CE)	Semester (Winter / Summer)
IRE	IV	2,9	6	CE	Winter semester
Case studies and accompanying program	IV	1,1			

4. Description of course types

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)
In the event of high demand, students of the advanced training master "Building Sustainability (MBA)" have priority.

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	**Total Hours**
2,9 hours per week of seminar-style lectures (in person)	44
1,1 hours per week of case studies and accompanying program	16
Preparation and follow-up incl. e-learning	90
Examination and exam preparation	30

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

8. Module completion

Graded Module
Type of assessment: Portfolio
Students who do not pass may repeat at the end of the current semester by taking a graded written exam (120 minutes).
Task and point allocation
(Learning process evaluation) Project - Contribution to discussion, 25
(Output evaluation) Oral presentation, 50
(Output evaluation) Presentation materials / written composition (term paper, 5-10 pages), 27

9. Module duration

The module can be completed in one semester.

Integration of Renewable Energies

10. Number of participants

IRE : Maximum number of participants: 25

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 a 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:	**ECTS credit points:**	**Short title:**
Efficiency Management	6	Efficiency
Module supervisor:	**Office:**	**E-Mail:**
Prof. Dr.-Ing. Joachim Müller-Kirchenbauer	Sandra Lubahn	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 integrating the technological, economic, business, and legal operations in companies and organizations and by taking social responsibility and sustainable development into account.

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.

Efficiency Management

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) or Compulsory elective (CE)	Semester (Winter / Summer)
Efficiency	IV	2,9	6	CE	Winter semester
Case studies and accompanying program	IV	1,1			

4. Description of course types

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)
In the event of high demand, students of the advanced training master "Energy Management (MBA)" have priority.

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	**Total Hours**
2,9 hours per week of seminar-style lectures (in person)	44
1,1 hours per week of case studies and accompanying program	16
Preparation and follow-up incl. e-learning	90
Examination and exam preparation	30

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

8. Module completion

Graded Module
Type of assessment: Portfolio
Students who do not pass may repeat at the end of the current semester by taking a graded written exam (120 minutes).
Task and point allocation
(Learning process evaluation) Project - Contribution to discussion, 25
(Output evaluation) Oral presentation, 50
(Output evaluation) Presentation materials / written composition (term paper, 5-10 pages), 28

9. Module duration

The module can be completed in one semester.

Efficiency Management

10. Number of participants
Efficiency : Maximum number of participants: 25
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 a 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.

Rural Electrification

E- EM 2

Module title:	**ECTS credit points:**	**Short title:**
Rural Electrification	6	Rural Electrification
Module supervisor:	**Office:**	**E-Mail:**
Dawud Ansari, M.Sc.	Sandra Lubahn	sandra.lubahn@campus.tu-berlin.de

Module description

1. Module aims

Students can describe, analyze, and evaluate the role of developing and emerging countries in global energy systems as well as their local and regional challenges, peculiarities, and opportunities. You can explain and apply energy-related macroscopic concepts such as economic development and path dependency. Students understand macroscopic concepts as well as political programs and efforts related to energy in developing and emerging countries and can contextually classify and evaluate measures and developments, especially against the background of the term energy poverty and its characteristics. Students are familiar with various off-grid technologies and can choose between them, including the use of suitable methods of integrative planning. Finally, students can act better in group projects, understand the process of development cooperation and can understand and design central elements in it, and are aware of their responsibility for global as well as local sustainable development.

2. Content

Global energy (long-term scenarios, determinants of the world energy system, energy in developing and emerging economies); Sustainable development (SDGs, growth and development theory, Hartwick rule, resource dependency, and diversification, case studies); Energy poverty and access (definition, empirical data, generation and consumption patterns of low-income households, subsidies for fossil fuels and reforms, the role of energy efficiency, case studies); Rural electrification and off-grid technologies (off-grid technologies, computer-assisted planning of off-grids including the basics of mixed-integer optimization, economics, and management in off-grids, the practice of development cooperation); Project phase (e.g. off-grid design, development cooperation, business case).

Rural Electrification

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) or Compulsory elective (CE)	Semester (Winter / Summer)
Rural Electrification	IV	2,9	6	CE	Winter semester
Case studies and accompanying program	IV	1,1			

4. Description of course types

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)
In the event of high demand, students of the advanced training master "Energy Management (MBA)" have priority.

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	**Total Hours**
2,9 hours per week of seminar-style lectures (in person)	44
1,1 hours per week of case studies and accompanying program	16
Preparation and follow-up incl. e-learning	90
Examination and exam preparation	30

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

8. Module completion

Graded Module
Type of assessment: Portfolio
Students who do not pass may repeat at the end of the current semester by taking a graded written exam (120 minutes).
Task and point allocation
(Learning process evaluation) Project - Contribution to discussion, 25
(Output evaluation) Oral presentation, 50
(Output evaluation) Presentation materials / written composition (term paper, 5-10 pages), 29

9. Module duration

The module can be completed in one semester.

Rural Electrification

10. Number of participants
Rural Electrification : Maximum number of participants: 25
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 a 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.

Project Management Skills – Managing (Agile) Projects and Product Development

E- EM 3

Module title:	**ECTS credit points:**	**Short title:**
Project Management Skills – Managing (Agile) Projects and Product Development	6	Project Management Skills
Module supervisor:	**Office:**	**E-Mail:**
Christian Busch, M.Sc., MBA	Sandra Lubahn	sandra.lubahn@campus.tu-berlin.de

Module description

1. Module aims

The overall qualification goal of the module is to enable the students to plan, implement, and successfully complete projects economically, efficiently, and according to modern agile and classic management methods. They understand the project or product life cycle and, based on the mediating classic and agile project and product management methodology, they can create, analyze, interpret and evaluate individual essential building blocks of project management and apply them future-oriented. They will learn about challenges in ensuring quality (quality management), opportunities, and threats in development and implementation (risk management), and the principles of identifying user needs (requirements management). Furthermore, the students learn the roles, tasks, and processes in modern project management, as well as the special features and challenges in stakeholder management, and can implement this in the future in a communication and information management strategy. Also, the students are aware of the similarities and differences between individual and multi-project / project portfolio management.
At the end of the course, the students can act in the mediated roles in agile and classic projects, understand the essential project management processes, can generate central management documents themselves, and can apply and further deepen the methodology in future projects.

2. Content

Mediation of the project and product management modules: project organization (e.g. project management manual), goal planning (vision, strategy, concept, business case, project plan), process, schedule and cost planning, resource planning, information and reporting, stakeholder management, requirements management, risk management, quality management, getting to know different development strategies (e.g. general (waterfall), incremental, iterative), presentation of classic project management methods (PRINCE2, IPMA) and agile methods (e.g. SCRUM) as well as application in mini-scenarios, mediation of roles, committees and most important Stakeholders (needs, measures of stakeholder management) in project management (including assignments and case studies), getting to know risk management methods, agile according to SCRUM and classic according to AXELOS Management of Risk (M_o_R), getting to know requirements management methods, agile according to SCRUM and classic according to IREB (International Requirements Engineering Board), project phase (e.g. Use of business cases from previous modules to create project plans, requirement sketches or risk management measures).

Project Management Skills – Managing (Agile) Projects and Product Development

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) or Compulsory elective (CE)	Semester (Winter / Summer)
Project Management Skills	IV	2,9	6	CE	Winter semester
Case studies and accompanying program	IV	1,1			

4. Description of course types

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)
In the event of high demand, students of the advanced training master "Energy Management (MBA)" have priority.

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	**Total Hours**
2,9 hours per week of seminar-style lectures (in person)	44
1,1 hours per week of case studies and accompanying program	16
Preparation and follow-up incl. e-learning	90
Examination and exam preparation	30

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

8. Module completion

Graded Module
Type of assessment: Portfolio
Students who do not pass may repeat at the end of the current semester by taking a graded written exam (120 minutes).
Task and point allocation
(Learning process evaluation) Project - Contribution to discussion, 25
(Output evaluation) Oral presentation, 50
(Output evaluation) Presentation materials / written composition (term paper, 5-10 pages), 30

9. Module duration

The module can be completed in one semester.

Project Management Skills – Managing (Agile) Projects and Product Development

10. Number of participants
Project Management Skills：Maximum number of participants: 25
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 a 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.

Business Models and Investments in Sustainable Mobility

E- SuMo 1

Module title:	**ECTS credit points:**	**Short title:**
Business Models and Investments in Sustainable Mobility	6	Business Models
Module supervisor:	**Office:**	**E-Mail:**
Prof. Dr. Hans-Liudger Dienel	Alina Pfeifer	alina.pfeifer@campus.tu-berlin.de

Module description

1. Module aims

After taking this module, students will:
-understand the basic principles of financial instruments;
-be able to apply these in order to implement sustainable mobility;
-be able to evaluate traditional and innovative business models in sustainable mobility.
-be able to develop innovative economic and financial models;

2. Content

Transport investment
-Sources and limits of financial resources for sustainable mobility;
-Investment calculation;
-Critically linking project financing, decision-making, and investment analysis.
-Concept of the infrastructure cycle and long-term investment;
Business models
-Traditional and innovative business models;
-Sharing economy and crowdfunding;
-Designing a business model (select product/service; determine benefits, analyze and identify market, revenue model, value chain).

Business Models and Investments in Sustainable Mobility

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) or Compulsory elective (CE)	Semester (Winter / Summer)
Business Models	IV	2,9	6	CE	Winter semester
Case studies and accompanying program	IV	1,1			

4. Description of course types

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)
In the event of high demand, students of the advanced training master "Sustainable Mobility Management (MBA)" have priority.

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	**Total Hours**
2,9 hours per week of seminar-style lectures (in person)	44
1,1 hours per week of case studies and accompanying program	16
Preparation and follow-up incl. e-learning	90
Examination and exam preparation	30

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

8. Module completion

Graded Module
Type of assessment: Portfolio
Students who do not pass may repeat at the end of the current semester by taking a graded written exam (120 minutes).
Task and point allocation
(Learning process evaluation) Project - Contribution to discussion, 25
(Output evaluation) Oral presentation, 50
(Output evaluation) Presentation materials / written composition (term paper, 5-10 pages), 31

9. Module duration

The module can be completed in one semester.

Business Models and Investments in Sustainable Mobility

10. Number of participants
Business Models：Maximum number of participants: 25
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 a 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.

Data Analysis and ICT in Mobility

E- SuMo 2

Module title:	**ECTS credit points:**	**Short title:**
Data Analysis and ICT in Mobility	6	ICT
Module supervisor:	**Office:**	**E-Mail:**
Prof. Dr. Hans-Liudger Dienel	Alina Pfeifer	alina.pfeifer@campus.tu-berlin.de

Module description

1. Module aims

After taking this module, students will:
-evaluate current and future practices in the digitalization of the transport industry and transport services;
-be familiar with the principles of i) data collection ii) data analysis and iii) modeling to support decision-making processes; iv) data mining;
-be able to understand the use of data in mobility systems.

2. Content

The role and growth of ICT;
-The complex relationship between ICT and mobility;
-Quantitative and qualitative data; Data collection; Designing and analyzing surveys;
-Data collection, modeling, analysis;
-Data mining;
-Interpretation of ICT and qualitative data;
-Project work.

Data Analysis and ICT in Mobility

3. Module components

Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) or Compulsory elective (CE)	Semester (Winter / Summer)
ICT	IV	2,9	6	CE	Winter semester
Case studies and accompanying program	IV	1,1			

4. Description of course types

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)
In the event of high demand, students of the advanced training master "Sustainable Mobility Management (MBA)" have priority.

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	**Total Hours**
2,9 hours per week of seminar-style lectures (in person)	44
1,1 hours per week of case studies and accompanying program	16
Preparation and follow-up incl. e-learning	90
Examination and exam preparation	30

This amounts to a workload of 180 hours per semester, which is equivalent to 6 credits.
8. Module completion
Graded Module Type of assessment: Portfolio Students who do not pass may repeat at the end of the current semester by taking a graded written exam (120 minutes). Task and point allocation (Learning process evaluation) Project - Contribution to discussion, 25 (Output evaluation) Oral presentation, 50 (Output evaluation) Presentation materials / written composition (term paper, 5-10 pages), 32
9. Module duration
The module can be completed in one semester.

Data Analysis and ICT in Mobility

10. Number of participants
ICT：Maximum number of participants: 25
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 a 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.

Urban and Transport Planning in Emerging Economies: Concepts and Experiences

E- SuMo 3

Module title:	**ECTS credit points:**	**Short title:**
Urban and Transport Planning in Emerging Economies: Concepts and Experiences	6	Urban planning
Module supervisor:	**Office:**	**E-Mail:**
Prof. Dr. Hans-Liudger Dienel	Alina Pfeifer	alina.pfeifer@campus.tu-berlin.de

Module description

1. Module aims

After taking this module, students will:
-be familiar with the urban and transport planning experiences in Emerging Economies;
-know smart city concepts, theories, and criticisms
-Use this knowledge to apply analytical methods in various institutional and economic contexts;
-develop effective instruments based on these.

2. Content
Designing Sustainable Urban Mobility Plans; -Stakeholder strategies-tools and methods, social, gender and cultural aspects; -Regulatory frameworks, financing, and institutional challenges; -The role of transport options for a sustainable economy: indicators for monitoring and assessing; -Knowledge and technology exchange - transfer and barriers; -Mobility challenges in the developing world on a rural and urban scale; -Megacities, Smart city concepts, theories, and criticism.

Urban and Transport Planning in Emerging Economies: Concepts and Experiences

3. Module components					
Course title	Course type	Course hours per week	ECTS credits	Compulsory (C) / Elective (E) or Compulsory elective (CE)	Semester (Winter / Summer)
Urban planning	IV	2,9	6	CE	Winter semester
Case studies and accompanying program	IV	1,1			

4. Description of course types
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) In the event of high demand, students of the advanced training master "Sustainable Mobility Management (MBA)" have priority.

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	**Total Hours**
2,9 hours per week of seminar-style lectures (in person)	44
1,1 hours per week of case studies and accompanying program	16
Preparation and follow-up incl. e-learning	90

Examination and exam preparation	30

8. Module completion

Graded Module
Type of assessment: Portfolio
Students who do not pass may repeat at the end of the current semester by taking a graded written exam (120 minutes).
Task and point allocation
(Learning process evaluation) Project - Contribution to discussion, 25
(Output evaluation) Oral presentation, 50
(Output evaluation) Presentation materials / written composition (term paper, 5-10 pages), 33

9. Module duration

The module can be completed in one semester.

Urban and Transport Planning in Emerging Economies: Concepts and Experiences

10. Number of participants

Urban planning : Maximum number of participants: 25

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 a 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.