BUILDING SUSTAINABILITY
MANAGEMENT METHODS FOR
ENERGY EFFICIENCY MBA

Intake 2018 – 2019

Winter Semester 2019 / 2020

Last updated on June 18, 2019
Dear students,

The concept of the German “Energiewende” – literally, energy transition – has gained international attention. It includes a variety of measures that aim at making Europe’s largest economy free of fossil fuels and nuclear energy. In order to attain this, all areas of energy production and consumption will have to go through a transition process. Besides mobility and production, buildings are therefore one of the key factors for a successful Energiewende. In the building sector, this means redirecting from a mainly fossil-fueled energy supply towards renewable energies and a much more energy-efficient use of energy in buildings and urban, as well as, regional areas. This is one of the largest and most urgent challenges of current urban development and other social disciplines.

Finding solutions to such a complex challenge means that a multitude of actors, from business, civil society, to public administration take part in the process and influence it with their differing and often conflicting interests. Resulting from this is the need for skilled workers who, based on highly professional qualifications, both understand all stakeholders and are able to work in a leading position with them.

The MBA program in Building Sustainability – Management Methods for Energy Efficiency will teach you exactly this: skills, methods, and concepts to consider different approaches, to understand them, and to align them for reaching sustainable solutions. Such proficiencies are not only important in the context of the Energiewende, but are indispensable in every building, construction and real estate project that takes energy efficiency and the other sustainability criteria like economic, ecological, social, and cultural balances into account.

In this regard, you will learn a lot from our experts, coming from research labs and scientific institutions as well as from the practical areas of planning and implementation. You will also learn from your classmates and hopefully enjoy the international, interdisciplinary teamwork as well as Berlin’s urban and cosmopolitan atmosphere.

Prof. Julian Wékel
Academic Director
Content

Overview ..................................................................................................................... 5
The Building Sustainability Team ............................................................................. 6
Studying Management Methods for Energy Efficiency with The Experts
.................................................................................................................................. 7

Third Semester ........................................................................................................... 9
Module 08 Life Cycle Management ........................................................................ 11
Module 09 B: Managing Sustainable Innovations - Part II .............................. 13
Module 09 C: Integration of Renewable Energies .............................................. 15
Module 9 Master Thesis ............................................................................................ 19
Alumni Program ........................................................................................................ 20

Faculty ....................................................................................................................... 21
Lecturers & Tutors ..................................................................................................... 22
Overview
The Building Sustainability Team

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According to the German Advisory Council on Global Change, by 2050, the urban population alone will be larger than the current total world population. This will lead to considerable challenges for the planning and the construction sector since roughly the same amount of infrastructure will be added in the next three decades as has been built since the beginning of industrialization. In addition, most of the existing infrastructure will have to be renewed in the same period. “For example, if the expansion of infrastructure has a CO$_2$ footprint that is similar to that of the current infrastructure of cement, steel, and aluminum in industrialized countries, the construction of new infrastructures in developing countries and emerging economies alone could lead to around a third of the total available CO$_2$ budget if the temperature increase is to be limited to 1.5°C.”

In addition to the technical aspects regarding CO$_2$ saving solutions, strategic concepts for communication and cooperation are crucial for success in large-scale and structural important projects. Whereas building a house has become a manageable task, things become much more complicated when considering the urban environment and wider interests such as energy efficiency and other relevant factors of climate protection. The master program Building Sustainability focusses therefore not only on technical and economic perspectives but also aims at imparting basic knowledge in other relevant disciplines. This means that the scope of the program is both broad and specific at the same time. The combination of technology, management, and sustainability-related topics is therefore, a unique opportunity for young professionals to extend their skills and prepare for important planning and construction-related team functions in this huge challenge of the 21$^{st}$ century.

Whereas the Building Sustainability program is new, there is already plentiful experience in conducting practice-orientated master programs on the EUREF campus. The first program started in October 2012, was taught in German, and focused on energy-efficient construction and operation of buildings. As a Master of Science, it was an interdisciplinary program with a very specific focus. It turned out, however, that this subject matter needs a broader scope. Two other Master programs – European and International Energy Law (Master of Business Law) and Energy Management (MBA) – also showed high international demand in the field of energy and sustainability. Therefore, current, and former students, teachers, and professionals re-designed the program and created Building Sustainability (MBA) with a schedule that focusses not only on engineers and architects but also on urban planners, economists, and project managers.

The idea is that sustainable project results can only be achieved in extensive cooperation of all stakeholders, considering economic, ecological, social, and cultural aspects. Managing and moderating such cooperation is one of the major challenges of implementing sustainability in planning and building projects of all scales. The program aims therefore on enabling students to understand the complexity of sustainable planning and management processes and to develop solutions accordingly. This will

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happen in modules with different approaches: some will teach facts and numbers, others will facilitate connections between different fields and the soft skills of mediating between them, and some are designed to apply these competencies to practical projects.

Graduates will be able to moderate and manage complex projects in the construction, real estate, and planning sector. The program provides the knowledge and skills for assessing projects from technical, ecological, and economic perspectives and for creatively finding solutions to consider the varying stakeholders’ interest, in teams or independently. Graduates will either be able to enter the labor market in both the private and public sectors or continue with postgraduate studies.
Third Semester
EUREF Master Programs
Orientation Week

October 7th – October 11th (details tba)
Main Campus Charlottenburg, EUREF Campus

Campus Tour, Berlin Tour, Library Insights,
Get-Togethers, Administrative Duties

Opening, 11th October, 4 pm – 6 pm
Lichthof / Atrium TU Berlin, Str. des 17. Juni 135, 10623 Berlin

Welcome Addresses Academic Directors
Music, Refreshments

MBA Program First Lecture

October 18th, 2019, 9.30am–5.30pm
Module 08 Life Cycle Management

Prof. Dr.-Ing. Markus Krämer
Informations- und Kommunikationssysteme im Facility Management,
Hochschule für Technik und Wirtschaft Berlin (HTW)
www.htw-berlin.de/campus/

Aims and Scope Real Estate and Facility Management are significant in the global structural change from an industrial towards a service-orientated society. In this course, students learn relevant working methods and their theoretical basis (e.g. life cycle concepts, life cycle information management, service, and facility management standards) together with an understanding of services and customer needs. Students are able to apply those management concepts and make decisions in terms of implementing an FM organization and its business processes according to the needs of building owners and users.

Schedule

Fri. 18/10/19 Introduction Life Cycle Management;
Standards in FM (e.g. DIN 15221)
Prof. Dr.-Ing. Nicole Riediger

Fri. 08/11/19 Standards in FM (process, KPI);
Service Level Agreements
Prof. Dr.-Ing. Nicole Riediger

Fri. 22/11/19 Building Information Management 1; BPMN; Project Work (part 1: company)
Prof. Dr.-Ing. Markus Krämer

Fri. 29/11/19 Building Information Management 2; Project Work (part 2: modeling)
Prof. Dr.-Ing. Markus Krämer
Fri. 13/12/19  Presentation G2Plus; Project Work (part 3)
              Schönebeck / Prof. Dr.-Ing. Markus Krämer

Fri. 10/01/20  Balanced Scorecard; Interims Presentation; Projekt Work (part 4)
              Prof. Dr.-Ing. Markus Krämer

Fri. 17/01/20  Benchmarking (guest talk, REMO)
              Prof. Dr.-Ing. Markus Krämer

Fri. 24/01/20  Project Work (consultation)
              Prof. Dr.-Ing. Markus Krämer

Fri. 31/01/20  Project Work (final consultations)
              Prof. Dr.-Ing. Markus Krämer

Fri. 07/02/20  Project Work (defence)
              Prof. Dr.-Ing. Markus Krämer

Literature

[1]
Module 09 B: Managing Sustainable Innovations - Part II

Dr. Maren Borkert  
Research Associate  
Technische Universität Berlin  
www.entrepreneurship.tu-berlin.de

Julian Alexandraks  
Research Associate  
Technische Universität Berlin  
www.entrepreneurship.tu-berlin.de

Aims and Scope  The module Technology and Innovation Management is an interdisciplinary project. Students learn about Managing Sustainable Innovations in theory and practice. First, the course provides theoretical input sessions about innovation management, technology management, project management, team building, and more. Second, the students will apply this knowledge to a real project and work together with industrial partners. They will develop a business model and prototype in (interdisciplinary) teams based on a given problem. Finally, the teams hand in a written project report and give an oral presentation on their prototype.

Schedule

Thu. 24/10/19  Managing Sustainable Innovations, Part II 1  
Dr. Maren Borkert  
Julian Alexandrakis

Fri. 25/10/19  Managing Sustainable Innovations, Part II 2  
Dr. Maren Borkert  
Julian Alexandrakis

Thu. 07/11/19  Managing Sustainable Innovations, Part II 3  
Dr. Maren Borkert  
Julian Alexandrakis
Managing Sustainable Innovations, Part II 4
Dr. Maren Borkert
Julian Alexandrakis

Managing Sustainable Innovations, Part II 5
Dr. Maren Borkert
Julian Alexandrakis

Managing Sustainable Innovations, Part II 6
Dr. Maren Borkert
Julian Alexandrakis

Literature


Module 09 C: Integration of Renewable Energies

Dipl.-Ing. Martin Schnauss
Renewables academy
www.renac.de

Aims and Scope  50% of the world’s energy demand accounts for heat. This course considers the supply of private-public and commercial buildings from the demand side. In doing so, different supply models with renewable energy technologies are considered and compared, and solar thermal technology is brought into focus. An equally simple and highly efficient technology that is internationally diversified, but widely underestimated and neglected.

The module looks at different technologies, storage options even seasonal storage concepts and leads through all phases of project development, from dimensioning to implementation and economic analysis. Quality assurance, standards maintenance, and operation are also important issues in this market, so the reference to the practice is made by sight visits.

The graduates are introduced to the technology of solar thermal systems and gain the ability to develop system concepts adapted to the building environment, dimension components and optimize operating parameters.

Schedule

Tue. 22/10/19    Integration of Renewable Energies 1
Dipl.-Ing. Martin Schnauss

Tue. 29/10/19    Integration of Renewable Energies 2
Dipl.-Ing. Martin Schnauss

Tue. 05/11/19    Integration of Renewable Energies 3
Dipl.-Ing. Martin Schnauss

Tue. 12/11/19    Integration of Renewable Energies 4
Dipl.-Ing. Martin Schnauss
Tue. 26/11/19  Integration of Renewable Energies 5
Dipl.-Ing. Martin Schnauss

Tue. 03/12/19  Integration of Renewable Energies 6
Dipl.-Ing. Martin Schnauss

Tue. 10/12/19  Integration of Renewable Energies 7
Dipl.-Ing. Martin Schnauss

Tue. 14/01/20  Integration of Renewable Energies 8
Dipl.-Ing. Martin Schnauss

Tue. 21/01/20  Integration of Renewable Energies 9
Dipl.-Ing. Martin Schnauss

Tue. 04/02/20  Integration of Renewable Energies 10
Dipl.-Ing. Martin Schnauss

Literature

A very comprehensive fundamental and scientific explanation of the physical and mathematical background of solar radiation end engineering. (Also known as the “Bible of solar technology”).

Summarises very colourful the theoretical and practical knowledge from 20 years of research, implementation and operation of solar thermal installations.

Khartchenko, Nikolai; Thermische Solaranlagen; ISBN: 978-3-89700-372-9; 2004
Basic knowledge and physical background of solar technology (in German).

A very practical and detailed folder for support in system design and installation

Dr. Sonne Team, Klaus Oberzig; BINE Informationspaket Solare Wärme; ISBN 978-3-934595-73-6
Basic theoretical and practical information for solar installations in Germany.

Consumer orientated guide to solar water heating

Basic information for installation and use of food dryers.

Ramlow, Bob; Solar Water Heating (Mother Earth); ISBN-10: 0865715610; 2006
Historical review and practical introduction to modern solar energy systems
Trimby, Paul; Solar Water Heating; ISBN 1 90217 530 1; 2008
A do it yourself guide for installation of solar water heaters.

Laughton, Chris; Solar domestic water heating; ISBN: 978-1-84407-736-6; 2010
A very practical guideline for system design real installation.
Christmas Dinner and Celebration

Dec. 20th, 2019, 6:00 pm
Hotel Abion Berlin

Fair Visit: E-world energy & water
(11 – 13th February 2020)

Feb. 13th, 2020
(Please see Moodle/ISIS for more information)

Read more
Module 9 Master Thesis

Supervisors  Individual.

Aims and Scope  Students demonstrate with the Master Thesis to be capable to address a problem from their study program independently, based on scientific methods, within a specific deadline. Once registered for the thesis, students have four months to conclude.

Schedule  To start the master thesis, 62 CP must have been gathered; this equals successful completion of all mandatory modules M1-M7. Technically, the earliest starting date is hence six weeks after the last exam. The thesis can be postponed but should be completed in the third term.

Contents  Individual.

Form  Fifty pages, plus introduction and annex(es). In English. Scientific standards prerequisite. More detailed formal requirements to be announced.

Wed. 18/7/18  Tutorial/ FAQ: Preparation for Master Thesis

Phillip Hebert & Mariam Elsheikh, M.Sc.
Alumni Program

With your degree, you become part of the alumni network. Alumni receive invitations to participate in the further extension of the academic program, and to events held on the campus and within the network.

As the program rolls over, you are cordially invited to participate in the curricular and extracurricular events of the following academic year(s)
Faculty
**Lecturers & Tutors**

**Prof. Julian Wékel**
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Building Sustainability – Management Methods for Energy Efficiency MBA
master-in-energy.com

**Dr. Maren BORKERT**
Research Associate
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http://www.entrepreneurship.tu-berlin.de/

**Julian ALEXANDRAKS**
Research Associate
Technische Universität Berlin
www.entrepreneurship.tu-berlin.de

**Prof. Dr. Jan KRATZER**
Entrepreneurship and Innovation Management
Technische Universität Berlin
CfE Center for Entrepreneurship at TU Berlin
https://www.entrepreneurship.tu-berlin.de/
Zsuzsa Besenyői, M.Sc.
Hochschule für Technik und Wirtschaft Berlin (HTW Berlin)
www.htw-berlin.de/campus/

Prof. Dr.-Ing. M. Norbert Fisch
Technische Universität Braunschweig
www.tu-braunschweig.de/igs/institut

Dipl.-Ing. Daniel Freund
Wissenschaftlicher Mitarbeiter
Distributed Artificial Intelligence Labor
Technische Universität Berlin
www.dai-labor.de

Prof. Dr.-Ing. Andreas Holm
Laborleiter Labor für Bauphysik
Forschungsinstitut für Wärmeschutz e.V. München
www.fiw-muenchen.de
Prof. Dr.-Ing. Markus Krämer
Hochschule für Technik und Wirtschaft Berlin (HTW)
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Prof. Dr.-Ing. Nicole Riediger
Construction and Real Estate Management – International Project and Facility Management
HTW Berlin
www.htw-berlin.de/campus/

Dipl.-Ing. I M.Eng. Christoph Vornhusen
Founder/ owner
Bencon Energies
www.benconenergies.com

Dr.-Ing. Carolin Schröder
Wissenschaftliche Mitarbeiterin
Technische Universität Berlin
Zentrum Technik und Gesellschaft
www.tu-berlin.de/ztg/menue/startseite_ztg/
Prof. Dr. Tetyana Morozyuk
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Thorsten Schulte
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