

*Please note: This is a computer-assisted translation. The details of the modules may be subject to changes. For specific information please contact our international student advisors*

## **Enclosure 5**

### **Module manual of the study program**

### **Energy Economics degree program**

### **Master of Science**

of the Department of Economics  
of the Darmstadt University of Applied Sciences

from 27.04.2020

Underlying BBPO dated 04/27/2020 (Official Notices Year 2021).

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<b>1</b>	<b>Module name</b> Innovative and sustainable business model development in the decentralized energy industry
<b>1.1</b>	<b>Module abbreviation</b> 411
<b>1.2</b>	<b>Type</b> Mandatory Module
<b>1.3</b>	<b>Course</b> Innovative and sustainable business model development in the decentralized energy industry
<b>1.4</b>	<b>Semester</b> Semester 1
<b>1.5</b>	<b>Module manager</b> Dr. Kerstin Hooß
<b>1.6</b>	<b>Other teachers</b> Lecturers of the department W
<b>1.7</b>	<b>Degree level</b> Master
<b>1.8</b>	<b>Teaching language</b> German
<b>2</b>	<p><b>Content</b></p> <p>This module is divided into two blocks.</p> <p>Block I provides students with in-depth, technical knowledge of the structures of decentralized energy systems and their integration into the energy system. The topics for Block I are listed below:</p> <ul style="list-style-type: none"> <li>• Technology overview and special features;</li> <li>• Impact of decentralized renewable feed-in on grid integration;</li> <li>• energy industry players, tasks and business areas;</li> <li>• legal basis and framework conditions (connection obligation, remuneration, marketing possibilities, etc.);</li> <li>• municipal and regional models of decentralized energy generation;</li> <li>• decentralized energy systems in the context of information and communication technologies;</li> <li>• economic framework conditions of decentralized plants.</li> </ul> <p>Block II teaches methods of innovation management. With the help of the methods learned, students independently conduct workshops that serve to generate business models in the decentralized energy industry. For this purpose, you will work your way into a case study, which forms the framework of Block II.</p>

<p><b>3</b></p>	<p><b>Targets</b></p> <p>Successful completion of this module will enable students to:</p> <p><u>Knowledge:</u></p> <ul style="list-style-type: none"> <li>• Identify the specifics of decentralized energy systems from an economic, technical and legal point of view.</li> <li>• Know the operations and management of selected generation facilities.</li> <li>• Master different innovation management methods</li> </ul> <p><u>Skills:</u></p> <ul style="list-style-type: none"> <li>• Understand and evaluate the possibilities and limitations of integrating distributed energy systems into the energy system.</li> <li>• Plan and conduct workshops</li> <li>• Create business plans.</li> </ul> <p><u>Competencies:</u></p> <ul style="list-style-type: none"> <li>• Development of interdisciplinary connections (technical-economic and social-ecological).</li> <li>• Engage in critical discussions on a wide variety of energy systems topics.</li> <li>• Apply social skills acquired through exercises (including group work) and workshops in context.</li> </ul>
<p><b>4</b></p>	<p><b>Teaching and learning methods</b></p> <p>Teaching and learning methods: Lecture (L), Exercise (E), Seminar (Sem), Project (Pro) Media used: Beamer and blackboard, FlipChart</p>
<p><b>5</b></p>	<p><b>Workload and Credit Points</b></p> <ul style="list-style-type: none"> <li>• 5 CP</li> <li>• 150 hours of work</li> <li>• 64 hours of classroom study</li> <li>• 86 hours of self-study (preparation and follow-up, exam preparation)</li> </ul>
<p><b>6</b></p>	<p><b>Form of examination, duration and examination requirements</b></p> <ul style="list-style-type: none"> <li>• Examination in the form of a term paper. This will be taken into account with 60% in the overall assessment of the module.</li> <li>• Preliminary examinations (e.g. working on exercises or development tasks, workshops or case studies) - also in group work, are graded with 40% of the module grade.</li> <li>• Students may retake the examinations in the following semester.</li> </ul>
<p><b>7</b></p>	<p><b>Necessary knowledge</b></p> <p>Understanding of energy economics and energy technology.</p>
<p><b>8</b></p>	<p><b>Recommended knowledge</b></p> <p>Lectures: Introduction to the energy industry, energy industry structures, energy markets, law of the energy industry, renewable energies, technology of energy plants.</p>

<b>9</b>	<b>Duration, time structure and frequency of the offer</b> <ul style="list-style-type: none"><li>• Duration: 1 semester</li><li>• Offer: each winter semester</li><li>• Scope: 4 SWS.</li></ul>
<b>10</b>	<b>Usability of the module</b> <p>Project development, evaluation and financing of decentralized energy systems</p>
<b>11</b>	<b>Literature</b> <p>In each case the latest edition</p> <ul style="list-style-type: none"><li>• Böttcher, J.: Handbuch Offshore-Windenergie: Rechtliche, technische und wirtschaftliche Aspekte. Springer.</li><li>• Böttcher, J.: Management of biogas projects: Legal, technical and economic aspects. Springer.</li><li>• Erdmann, G.; Zweifel, P.: Energieökonomik. Springer.</li><li>• Karl, J.: Decentralized energy systems: New technologies in the liberalized energy market. Oldenbourg.</li><li>• Konstantin, P.: Praxisbuch Energiewirtschaft. Energy conversion, transport and procurement in the liberalized market. Springer.</li><li>• Vahs, D; Brehm, D.: Innovationsmanagement: Von der Idee zur erfolgreichen Vermarktung. Schäffer Poeschel.</li></ul> <p>Additional recommended reading will be provided in the course.</p>

<b>1</b>	<b>Module name</b> Decentralized energy economics
<b>1.1</b>	<b>Module abbreviation</b> 412
<b>1.2</b>	<b>Type</b> Mandatory Module
<b>1.3</b>	<b>Course</b> Decentralized energy economics
<b>1.4</b>	<b>Semester</b> Semester 1
<b>1.5</b>	<b>Module manager</b> M. Sc. Jan Müller-Halama
<b>1.6</b>	<b>Other teachers</b> Lecturers of the department W
<b>1.7</b>	<b>Degree level</b> Master
<b>1.8</b>	<b>Teaching language</b> German
<b>2</b>	<p><b>Content</b></p> <p>Students are able to apply the theoretical knowledge learned and deepened in the first section of the lecture to a concrete practical example in the second section of the lecture. They have in-depth knowledge of energy data procurement, current and future (management-)Technologies of a structured project management, basics of legal and normative energy management as well as knowledge and application possibilities of different common software alternatives.</p> <ul style="list-style-type: none"> <li>• Project Management</li> <li>• Municipal energy management</li> <li>• Combined heat and power, local and district heating networks (cooling networks)</li> <li>• Plant engineering</li> <li>• E-Mobility</li> <li>• Types and costs of common technologies for the rational use of energy</li> <li>• Practical examples on the topics: Leisure properties, hospitals, SMEs, energy economics in the manufacturing sector.</li> </ul>

<p><b>3</b></p>	<p><b>Targets</b></p> <p>Successful completion of this module will enable students to:</p> <p><u>Knowledge:</u></p> <ul style="list-style-type: none"> <li>• Know the different technologies to improve the rational use of energy.</li> </ul> <p><u>Skills:</u></p> <ul style="list-style-type: none"> <li>• Independently develop approaches to solutions using software programs.</li> <li>• Record, map and evaluate the different conditions of an energy economics on site at the concrete object.</li> <li>• The development of improvement proposals is prepared with the support of the instructor and presented to the appropriate "clients".</li> </ul> <p><u>Competencies:</u></p> <ul style="list-style-type: none"> <li>• Find your way around the organizational and operational structure of different types of companies and identify the required structures and energy flows.</li> <li>• Independently check the results for proportionality and plausibility using economic efficiency considerations.</li> </ul>
<p><b>4</b></p>	<p><b>Teaching and learning methods</b></p> <p>Teaching and learning methods: L, E, P, EX, practical experience, group work Media used: beamer, blackboard, software</p>
<p><b>5</b></p>	<p><b>Workload and Credit Points</b></p> <ul style="list-style-type: none"> <li>• 5 CP</li> <li>• 150 hours of work</li> <li>• 64 hours of classroom study</li> <li>• 86 hours of self-study (preparation and follow-up, exam preparation)?</li> </ul>
<p><b>6</b></p>	<p><b>Form of examination, duration and examination requirements</b></p> <ul style="list-style-type: none"> <li>• Examination in the form of a term paper (max. 60 pages) on the topic of the assigned semester task. The topic can be chosen freely. Duration of the presentation 10 to 15 min. The share of this examination performance in the module grade is 30%.</li> <li>• Group performance (homework with presentation on a practical energy economics topic at the given object). The share of this examination performance in the module grade is 70%.</li> <li>• Possibility to repeat: in the following semester</li> </ul>

7	<p><b>Necessary knowledge</b></p> <p>None</p>
8	<p><b>Recommended knowledge</b></p> <p>Investment and financing, plant engineering, renewable energies</p>
9	<p><b>Duration, time structure and frequency of the offer</b></p> <ul style="list-style-type: none"> <li>• Duration: 1 semester</li> <li>• Offer: every winter semester</li> <li>• Scope: 4 SWS</li> </ul>
10	<p><b>Usability of the module</b></p> <p>Module 411, Module 423, Master's thesis</p>
11	<p><b>Literature</b></p> <p>Current editions of the following books:</p> <ul style="list-style-type: none"> <li>☐ VDI 2067</li> <li>☐ DIN 2078</li> <li>• Baedeker, H., Meyer-Renschhausen, M.: Energiemanagement für kleine und mittlere Kommunen. Shaker.</li> <li>• Wosnitza, F., Hilgers, H. G.: Energieeffizienz und Energiemanagement, Ein Überblick heutiger Möglichkeiten und Notwendigkeiten. Vieweg+Teubner Verlag.</li> <li>• Kals, J.: Betriebliches Energiemanagement: Eine Einführung. W. Kohlhammer GmbH.</li> <li>• Regen, S.: DIN EN ISO 50001:2011 Implementation Workbook. WEKA Publishing House.</li> <li>• DIN e.V. (Ed.); Reimann, S.: Erfolgreiches Energiemanagement nach DIN EN ISO 50001: Lösungen zur praktischen Umsetzung Textbeispiele, Musterformulare, Checklisten.</li> <li>• Suttor, W.: Blockheizkraftwerke: Ein Leitfaden für den Anwender. (BINE reference book). Fraunhofer IRB Verlag.</li> <li>• Krimling, J.: Energieeffiziente Nahwärmesysteme: Grundwissen, Auslegung, Technik für Energieberater und Planer. Fraunhofer IRB Verlag.</li> <li>• Karle, A.: Elektromobilität: Grundlagen und Praxis. Carl Hanser Verlag GmbH &amp; Co. KG</li> <li>• Kals, J.: Betriebliches Energiemanagement: Eine Einführung. W. Kohlhammer GmbH.</li> <li>• Meyer, J.: Energie- und Umweltverhalten im Mittelstand (Small and medium-sized enterprises. Josef Eul Verlag.</li> <li>• Michels, B.: Projektmanagement Handbuch - Grundlagen mit Methoden und Techniken für Einsteiger, CreateSpace Independent Publishing Platform (Kindle Direct Publishing).</li> </ul>



<b>1</b>	<b>Module name</b> Pricing and cost structures in energy markets
<b>1.1</b>	<b>Module abbreviation</b> 413
<b>1.2</b>	<b>Type</b> Mandatory Module
<b>1.3</b>	<b>Course</b> Pricing and cost structures in energy markets
<b>1.4</b>	<b>Semester</b> Semester 1
<b>1.5</b>	<b>Module manager</b> Dr. Sebastian Herold
<b>1.6</b>	<b>Other teachers</b> Lecturers of the department W
<b>1.7</b>	<b>Degree level</b> Master
<b>1.8</b>	<b>Teaching language</b> German (supplemented by English texts if necessary)
<b>2</b>	<p><b>Content</b></p> <p>In this course, students gain in-depth insights into the functioning of energy markets. The focus is on the grid-based energy carriers electricity and gas, which are supplemented by petroleum and emission certificates. Thus, markets are considered that could become increasingly interconnected as sector coupling progresses. The power generation options considered, also against the background of international location competition, cover the entire spectrum from classical energy sources to renewable energies and their storage options. Key contents of this event are:</p> <ul style="list-style-type: none"> <li>• The market as an economic coordination system</li> <li>• "Market Failures: Natural Monopolies and Externalities in Energy Markets.</li> <li>• Supply of energy through classical and renewable energy sources</li> <li>• Demand for energy and flexibilization trends through smart consumers and sector coupling</li> <li>• Deployment and cost structures</li> <li>• National and international pricing in energy markets</li> <li>• Relevance of regulatory framework conditions</li> <li>• Marketplaces and pricing of selected energy carriers (esp. electricity, gas, petroleum, emission certificates)</li> </ul>

<p><b>3</b></p>	<p><b>Targets</b></p> <p>Successful completion of this module will enable students to:</p> <p><u>Knowledge:</u></p> <ul style="list-style-type: none"> <li>• Know how different energy markets work.</li> <li>• Know about the main trading venues and products and their specifics.</li> </ul> <p><u>Skills:</u></p> <ul style="list-style-type: none"> <li>• Understand pricing in energy markets.</li> <li>• Know the determinants and processes to be taken into account in the various energy markets and analyze them according to the situation.</li> <li>• place the central role of energy markets in the overall context of the value chain.</li> </ul> <p><u>Competencies:</u></p> <ul style="list-style-type: none"> <li>• Evaluate the design and use of alternative trading venues and the competitive situation of different energy sources.</li> <li>• Conduct reflections and stimulate and manage critical discussions.</li> <li>• Apply increased social and methodological skills through group work and appropriate presentations in</li> </ul>
<p><b>4</b></p>	<p><b>Teaching and learning methods</b></p> <p>Teaching and learning methods: L, E, Sem, Pro Media used: esp. beamer, whiteboard</p>
<p><b>5</b></p>	<p><b>Workload and Credit Points</b></p> <ul style="list-style-type: none"> <li>• 5 CP</li> <li>• 150 hours of work</li> <li>• 64 hours of classroom study</li> <li>• 86 hours of self-study (preparation and follow-up, elaborations, exam preparation)</li> </ul>
<p><b>6</b></p>	<p><b>Form of examination, duration and examination requirements</b></p> <ul style="list-style-type: none"> <li>• Assessed preliminary examination in the form of a subject-specific paper in small groups. Proportion of the module grade 40%.</li> <li>• Examination in the form of a written exam on the entire course content at the end of the module. Duration 90min. Share in the module grade 60%.</li> <li>• The exam can be repeated in the following semester.</li> </ul>

<p><b>7</b></p>	<p><b>Necessary knowledge</b></p> <p>Knowledge as usually taught in the following courses: Introduction to Energy economics, Energy Trading, Fundamentals of Economics, Fundamentals of Energy and Business Law.</p>
<p><b>8</b></p>	<p><b>Recommended knowledge</b></p> <p>-</p>
<p><b>9</b></p>	<p><b>Duration, time structure and frequency of the offer</b></p> <ul style="list-style-type: none"> <li>• Duration: 1 semester</li> <li>• Offer: every summer semester</li> <li>• Scope: 4 SWS</li> </ul>
<p><b>10</b></p>	<p><b>Usability of the module</b></p> <ul style="list-style-type: none"> <li>• Portfolio and risk management in the energy industry</li> <li>• Energy procurement case studies - electricity and gas industry</li> <li>• Project development, evaluation and financing of decentralized energy systems</li> <li>• Structures and management of decentralized energy systems</li> </ul>
<p><b>11</b></p>	<p><b>Literature</b></p> <p>In each case, the latest edition of the following books:</p> <ul style="list-style-type: none"> <li>• Bhattacharyya S. C.: Energy Economics. Springer</li> <li>• Erdmann, G.; Zweifel, P.: Energieökonomik. Springer</li> <li>• Edwards, D.: Energy Trading &amp; Investing. McGraw-Hill Education.</li> <li>• Löschel, A.; Rübbelke, D.; Pfaffenberger, W.; Ströbele, W.; Heuterkes, M.: Energiewirtschaft, Einführung in Theorie und Praxis. De Gruyter</li> <li>• Nersesian, R.: Energy Economics: Markets, History and Policy. Taylor &amp; Franciss Ltd.</li> <li>• Schiffer, H.: Energiemarkt Deutschland Daten und Fakten zu konventionellen und erneuerbaren Energien- Jahrbuch. Springer</li> <li>• Schwintowski, H.; Scholz, F.; Schuler, A.: Handbuch Energiehandel. Schmidt.</li> <li>• Zenke, I.; Schäfer, R.: Energy trading in Europe, oil, gas, electricity, derivatives, certificates. LexisNexis.</li> </ul> <p>Additional recommended reading will be provided in the course.</p>

<b>1</b>	<b>Module name</b> Corporate finance and business valuation
<b>1.1</b>	<b>Module abbreviation</b> 414
<b>1.2</b>	<b>Type</b> Mandatory Module
<b>1.3</b>	<b>Course</b> Corporate finance and business valuation
<b>1.4</b>	<b>Semester</b> Semester 1
<b>1.5</b>	<b>Module manager</b> Dr. Peter Schütterle
<b>1.6</b>	<b>Other teachers</b> Lecturers of the department W
<b>1.7</b>	<b>Degree level</b> Master
<b>1.8</b>	<b>Teaching language</b> German and English.
<b>2</b>	<p><b>Content</b></p> <p>I. Corporate Finance</p> <ul style="list-style-type: none"> <li>• Profitability and added value</li> <li>• Cash flow and cash flow statement j</li> <li>• Present Values and Opportunity Costs</li> <li>• Capital budgeting</li> <li>• Capital market theories: Risk and return</li> <li>• Investment decisions and risk</li> <li>• Financing decisions j</li> <li>• Capital structure and dividend policy j</li> <li>• Cost of capital approach j</li> <li>• Applications of options theory in corporate finance n</li> </ul> <p>II. Business valuation</p> <ul style="list-style-type: none"> <li>• Entity and equity methods j</li> <li>• Market value of debt capital</li> <li>• Real options approach</li> <li>• Capital structure and enterprise value</li> </ul>

<p><b>3</b></p>	<p><b>Targets</b></p> <p>Successful completion of this module will enable students to:</p> <p><u>Knowledge:</u></p> <ul style="list-style-type: none"> <li>• Present and explain methods and principles of corporate finance as a basis for financial decisions in the context of relevant stakeholders and the financial markets.</li> <li>• Differentiate between important approaches to business valuation, assessing their advantages and disadvantages and the basic assumptions made in each case.</li> </ul> <p><u>Skills:</u></p> <ul style="list-style-type: none"> <li>• Apply principles and methods of corporate finance to case studies in order to make diagnoses regarding profitability, liquidity or the generation of added value of a company, as well as develop recommendations for action for investment or financing decisions, taking into account risks, operational factors, target capital structure and tax environment.</li> <li>• Perform the main methods of business valuation for simple example cases.</li> </ul> <p><u>Competencies:</u></p> <ul style="list-style-type: none"> <li>• Develop solutions to financial issues for exemplary cases, both independently and in a team, and present and justify the results of their work to a peer group.</li> <li>• Apply financial management concepts and acquired skills, as well as social and methodological competence fostered by the use of cooperative forms of teaching, to modified problems and new contexts in study and professional practice.</li> </ul>
<p><b>4</b></p>	<p><b>Teaching and learning methods</b></p> <p>Teaching methods: L, E, Sem, group work, case studies. Media used: blackboard, beamer.</p>
<p><b>5</b></p>	<p><b>Workload and Credit Points</b></p> <ul style="list-style-type: none"> <li>• 5 CP</li> <li>• 150 hours of work</li> <li>• 64 hours of classroom study</li> <li>• 86 hours of self-study (preparation and follow-up, exam preparation)</li> </ul>
<p><b>6</b></p>	<p><b>Form of examination, duration and examination requirements</b></p> <p>The module includes a preliminary examination and an examination:</p> <ul style="list-style-type: none"> <li>• Preliminary examination according to §10 Abs. 4 ABPO amended version of 2.7.2019: Presentation/pre-calculation of two given exercises. The share of the preliminary examination in the module grade is 25%.</li> <li>• Examination: As a rule, processing of a case study with presentation of results in the sense of §10 para. 3 ABPO amended version of 2.7.2019 at the end of the module (duration: 3 hours). The share of the examination performance in the module grade is 75%.</li> <li>• Share of presentation of results: 25% of the examination performance.</li> <li>• Students have the opportunity to repeat the examination and the preliminary examination in the following semester.</li> </ul>

<b>7</b>	<p><b>Necessary knowledge</b></p> <p>Bachelor level: Business English, Business Mathematics, External Accounting, Investment and Finance.</p>
<b>8</b>	<p><b>Recommended knowledge</b></p> <p>English to the extent of level B2 in the area of "profession" (Common European Framework of Reference/GER), MS-EXCEL</p>
<b>9</b>	<p><b>Duration, time structure and frequency of the offer</b></p> <ul style="list-style-type: none"> <li>• Duration: 1 semester</li> <li>• Offered: every summer semester,</li> <li>• Scope: 4 SWS</li> </ul>
<b>10</b>	<p><b>Usability of the module</b></p> <p>The module is suitable for master's degree programs in energy economics and can be connected to the modules Project Development, Assessment and Financing of Decentralized Energy Systems. Portfolio and risk management in the energy industry.</p>
<b>11</b>	<p><b>Literature</b></p> <p>Current editions of the following books:</p> <ul style="list-style-type: none"> <li>• Brealey, R. A.; Myers, S. C.; Allen F.: Principles of Corporate Finance. McGraw-Hill Education Ltd.</li> <li>• Bösch, M.: Finanzwirtschaft, Investition, Finanzierung, Finanzmärkte und Steuerung. Vahlen Verlag.</li> <li>• Hillier, D.; Ross, A. S.; Westerfield, W.; Jaffe, J. F.; Jordan, B.: Corporate Finance. McGraw-Hill.</li> <li>• Perridon, L.; Steiner, M.; Rathgeber, A.: Finanzwirtschaft der Unternehmung. Vahlen Verlag.</li> <li>• Koller, T.; Goedhart, M.; Wessels, D. (McKinsey &amp; Company Inc.): Valuation: measuring and managing the value of companies. Wiley.</li> <li>• Seppelfricke, P.: Handbuch Aktien- und Unternehmensbewertung. Schäffer-Poeschel.</li> <li>• Peemöller, V. H. (Ed.): Praxishandbuch der Unternehmensbewertung. NWB Verlag.</li> </ul> <p>Additional references will be given in lecture.</p>

<b>1</b>	<b>Module name</b> Energy economic modeling
<b>1.1</b>	<b>Module abbreviation</b> 415
<b>1.2</b>	<b>Type</b> Mandatory Module
<b>1.3</b>	<b>Course</b> Energy economic modeling
<b>1.4</b>	<b>Semester</b> Semester 1
<b>1.5</b>	<b>Module manager</b> Dr. Jan H. Grävenstein
<b>1.6</b>	<b>Other teachers</b> Lecturers of the department W
<b>1.7</b>	<b>Degree level</b> Master
<b>1.8</b>	<b>Teaching language</b> German
<b>2</b>	<b>Content</b>  In particular, models of (integer) linear optimization, dynamic optimization and queueing theory are treated. The methods and models will be illustrated by case studies and exercises. Decision models under security and uncertainty as well as the basic models of game theory will be discussed.
<b>3</b>	<b>Targets</b>  Successful completion of this module will enable students to: <u>Knowledge:</u> <ul style="list-style-type: none"> <li>• Be able to name different methods and models of optimization.</li> <li>• In particular, know the models of (integer) linear optimization, dynamic optimization, and queueing theory and their prerequisites as well as possible applications.</li> </ul> <u>Skills:</u> <ul style="list-style-type: none"> <li>• Building on the basic course, set up and solve mathematical models of linear and dynamic optimization as well as queueing theory for various types of problems.</li> <li>• Record and assess complex decision-making situations and develop a proposed solution using suitable methods.</li> <li>• Apply the learned knowledge in various exercises/case studies and interpret the developed solution proposals economically.</li> </ul>

	<ul style="list-style-type: none"> <li>• Comprehend and model problems in the energy industry.</li> </ul> <p><u>Competencies:</u></p> <ul style="list-style-type: none"> <li>• Apply model solutions to the concrete business decision problem and critically assess their results and possible applications.</li> <li>• Apply the methodological skills learned to analyze and solve a variety of business (integer) optimization problems.</li> </ul>
<b>4</b>	<p><b>Teaching and learning methods</b></p> <p>Lecture (L), Exercise (E), possibly seminar (Sem)</p> <p>Media used: communication media (e.g. electronic learning platforms), presentation media (e.g. beamer, whiteboard, flipchart, smartboard, metaplan)</p>
<b>5</b>	<p><b>Workload and Credit Points</b></p> <ul style="list-style-type: none"> <li>• 5 CP</li> <li>• 150 hours of work</li> <li>• Attendance time: 64 hours</li> <li>• Self-study: 86 hours (preparation and follow-up, exam preparation)</li> </ul>
<b>6</b>	<p><b>Form of examination, duration and examination requirements</b></p> <ul style="list-style-type: none"> <li>• Examination in the form of a written examination (duration: 90 min) or an examination paper. The exact form of the examination will be announced at the beginning of the semester.</li> <li>• The exam can be repeated in the following semester.</li> </ul>
<b>7</b>	<p><b>Necessary knowledge</b></p> <p>-</p>
<b>8</b>	<p><b>Recommended knowledge</b></p> <p>Knowledge of operations research. Methodological mastery of the simplex algorithm is assumed.</p>
<b>9</b>	<p><b>Duration, time structure and frequency of the offer</b></p> <ul style="list-style-type: none"> <li>• Duration: 1 semester</li> <li>• Offer: each year</li> <li>• Scope: 4 SWS</li> </ul>
<b>10</b>	<p><b>Usability of the module</b></p> <p>-</p>



11 **Literature**

Current editions of the following books:

- Nickel, S.; Stein, O.; Waldmann, K.: Operations Research. Springer Gabler.
- Domschke, W.; Drexl, A.; Klein, R.; Scholl, A.: Introduction to Operations Research. Springer Gabler.
- Zimmermann, H.: Operations Research, Methods and Models. For industrial engineers, business economists, computer scientists. Springer Vieweg.
- Pindyck, R.; Rubinfeld, D.: Microeconomics. Pearson Studies.
- Burger, M.; Graeber, B.; Schindlmayr, G.: Managing energy risk: An integrated view on power and other energy markets. Wiley.
- Eisenführ, F.; Weber, M.; Langer, T.: Rational Decision Making. Springer Gabler.

<b>1</b>	<b>Module name</b> Information systems in the energy industry
<b>1.1</b>	<b>Module abbreviation</b> 421
<b>1.2</b>	<b>Type</b> Mandatory Module
<b>1.3</b>	<b>Course</b> Information systems in the energy industry
<b>1.4</b>	<b>Semester</b> Semester 2
<b>1.5</b>	<b>Module manager</b> Dr. Omid Tafreschi
<b>1.6</b>	<b>Other teachers</b> Lecturers of the department W
<b>1.7</b>	<b>Degree level</b> Master
<b>1.8</b>	<b>Teaching language</b> German
<b>2</b>	<p><b>Content</b></p> <p>Within the scope of the module, the role of information and communication technology (ICT) for the energy industry is considered. The focus here is on the following topics:</p> <ul style="list-style-type: none"> <li>• Information Management (IM),</li> <li>• Information systems (IS) for the market roles of the energy industry</li> <li>• the digital transformation.</li> </ul> <p>With regard to IM, principles of information economics for determining demand and supply of information from the perspective of different market roles (e.g. distribution system operator, supplier, connection user, ...) are addressed. Based on this, methods to close information gaps and to build control and steering mechanisms are presented.</p> <p>With regard to IS, possibilities of ICT for increasing energy efficiency and efficient integration of renewable energy sources are discussed on the basis of concrete use cases in the grid, industrial and residential sectors. In order to be able to work in an interdisciplinary manner, the fundamentals of software engineering and programming are taught.</p> <p>In order to sustainably shape the digital transformation of the energy industry, the management of information technology is taught.</p>

<p><b>3</b></p>	<p><b>Targets</b></p> <p>Successful completion of this module will enable students to:</p> <p><u>Knowledge:</u></p> <ul style="list-style-type: none"> <li>• Explain the importance of information as a resource for companies in the energy market.</li> <li>• Understand the interdisciplinary nature of the field of Information Management.</li> <li>• Described the structure of information systems in the energy industry.</li> <li>• The basics of system development reproduced.</li> </ul> <p><u>Skills:</u></p> <ul style="list-style-type: none"> <li>• Identify a company's information needs.</li> <li>• Develop strategies for the information offering in an organization.</li> <li>• Analyze and formulate requirements for information systems for the energy market.</li> </ul> <p><u>Competencies:</u></p> <ul style="list-style-type: none"> <li>• Work in interdisciplinary teams with IT experts.</li> <li>• Programming simple applications.</li> <li>• Present their work results.</li> <li>• Recognize trends, opportunities and risks of information and communication technology and act accordingly, i.e. develop sustainable business models and strategies for companies in the energy market.</li> </ul>
<p><b>4</b></p>	<p><b>Teaching and learning methods</b></p> <p>Lecture (L), Exercise (E), Projects (Pro)</p> <p>Media used: blackboard, beamer, e-learning platforms, software tools for modeling data and processes, and for programming.</p>
<p><b>5</b></p>	<p><b>Workload and Credit Points</b></p> <ul style="list-style-type: none"> <li>• 5 CP</li> <li>• 150 hours of work</li> <li>• 64 hours of classroom study</li> <li>• 86 hours of self-study (preparation and follow-up, exam preparation)</li> </ul>
<p><b>6</b></p>	<p><b>Form of examination, duration and examination requirements</b></p> <p>The module includes the following two examination performances:</p> <ul style="list-style-type: none"> <li>• Student research projects according to § 13 paragraph 2 ABPO. These are taken into account with 30 % in the overall assessment of the module.</li> <li>• Repeat opportunities for this examination performance exist in the following year.</li> <li>• Examination in the form of a written exam (duration: 90 min) on the entire course content of the module at the end of the module. The exam result is taken into account with 70 % in the overall assessment of the module.</li> <li>• Repeat opportunities for this examination performance exist in the following semester.</li> </ul>

<b>7</b>	<p><b>Necessary knowledge</b></p> <p>Energy data management or energy informatics</p>
<b>8</b>	<p><b>Recommended knowledge</b></p> <p>Business Informatics</p>
<b>9</b>	<p><b>Duration, time structure and frequency of the offer</b></p> <ul style="list-style-type: none"> <li>• Duration: 1 semester</li> <li>• Offer: every winter semester</li> <li>• Scope: 4 SWS</li> </ul>
<b>10</b>	<p><b>Usability of the module</b></p> <p>In master's degree programs that deal with digitization in the energy industry.</p>
<b>11</b>	<p><b>Literature</b></p> <p>Current editions of the following books:</p> <ul style="list-style-type: none"> <li>• Appelrath, H. J.; Beenken, P.; Bischofs, L.; Uslar, M. (Eds.): IT architecture development in the smart grid: perspectives for a secure market- and standards-based integration of renewable energies. Springer Gabler</li> <li>• Servatius, H. G.; Schneidewind, U.; Rohlfing, D. (Eds.): Smart Energy: Transformation to a Sustainable Energy System. Springer Verlag.</li> <li>• Krcmar H.: Information Management. Springer Verlag.</li> <li>• Frederick J.; Zierau T.: SAP for Utilities: The Comprehensive Handbook for Utilities. SAP PRESS, 2011.</li> <li>• Balzert H.: Lehrbuch der Softwaretechnik Basiskonzepte und Requirements Engineering. Spektrum Akademischer Verlag.</li> <li>• Balzert H.: Lehrbuch der Softwaretechnik Entwurf, Implementierung, Installation und Betrieb. Spektrum Akademischer Verlag.</li> <li>• Freund J., Rücker B.: Praxishandbuch BPMN 2.0. Hanser.</li> <li>• Shapiro C.; Varian H. R.: Information Rules: A Strategic Guide to the Network Economy. Harvard Business Review Press.</li> <li>• Brynjolfsson E.; McAfee A.: The Second Machine Age: How the next digital revolution will change all our lives. Plassen Publishers.</li> </ul> <p>Contributions of the following journals:</p> <ul style="list-style-type: none"> <li>• IEEE Transactions on Smart Grid</li> <li>• Business &amp; Information Systems Engineering - The International Journal of WIRTSCHAFTSINFORMATIK - Professional Journal</li> <li>• Harvard Business Review</li> <li>• Data protection and data security</li> <li>• Proceedings of the following conferences:</li> <li>• IEEE International Conference on Smart Grid Communications (SmartGridComm)</li> <li>• International Conference on Future Energy Systems (ACM e-Energy)</li> </ul> <p>Additional literature is recommended depending on the topic of the student projects.</p>

<b>1</b>	<b>Module name</b> Structured Energy Trading
<b>1.1</b>	<b>Module abbreviation</b> 422
<b>1.2</b>	<b>Type</b> Mandatory Module
<b>1.3</b>	<b>Course</b> Structured Energy Trading
<b>1.4</b>	<b>Semester</b> Semester 2
<b>1.5</b>	<b>Module manager</b> Dr. Peter Schütterle
<b>1.6</b>	<b>Other teachers</b> Lecturers of the department W
<b>1.7</b>	<b>Degree level</b> Master
<b>1.8</b>	<b>Teaching language</b> German and English
<b>2</b>	<p><b>Content</b></p> <p>I. Foundation</p> <ul style="list-style-type: none"> <li>• Introduction/Energy Commodities</li> <li>• EXCEL Tools</li> </ul> <p>II. Stock market strategies</p> <ul style="list-style-type: none"> <li>• Hedging with forwards/futures</li> <li>• Flex and short-term markets</li> </ul> <p>III. Off-exchange transactions for procurement/distribution (OTC)</p> <ul style="list-style-type: none"> <li>• Off standards: Swaps</li> <li>• Off standards: profiles</li> <li>• Off-Standards: Indexations</li> <li>• Flex products and packages</li> </ul> <p>IV. Practical work: Integrated business game (optimization of an energy portfolio consisting of customer positions and own generation on the energy exchanges)</p>

<p><b>3</b></p>	<p><b>Targets</b></p> <p>Successful completion of this module will enable students to:</p> <p><u>Knowledge:</u></p> <ul style="list-style-type: none"> <li>• Understand how standards/off standards and structured energy products work and typical areas of application for procurement, sales and risk management, and be able to explain them using examples</li> <li>• Gain as much real trading experience as possible in a business game, learn about and internalize price volatility, market risk and operational risk.</li> </ul> <p><u>Skills:</u></p> <ul style="list-style-type: none"> <li>• Realistically assess and manage trade risks</li> <li>• Develop tailored energy solutions for procurement, sales and risk hedging</li> <li>• Calculate offers on the market</li> <li>• Implement the necessary measures to secure margins when the deal is closed</li> <li>• In addition to deal structuring, optimize physical and synthetic asset positions via exchange trading and manage market risk on a daily basis.</li> </ul> <p><u>Competencies:</u></p> <ul style="list-style-type: none"> <li>• Independently and as a team, present and argue solutions developed for case studies to a group of peers.</li> <li>• Beneficially apply the insights and skills acquired during the module, as well as the social and methodological skills fostered through the use of cooperative teaching, to modified problems in other contexts of study and work.</li> </ul>
<p><b>4</b></p>	<p><b>Teaching and learning methods</b></p> <p>Teaching methods: L, E, Sem, group work, case studies. Media used: blackboard, beamer.</p>
<p><b>5</b></p>	<p><b>Workload and Credit Points</b></p> <ul style="list-style-type: none"> <li>• 5 CP</li> <li>• 150 hours of work</li> <li>• 64 hours of classroom study</li> <li>• 86 hours of self-study (preparation and follow-up, exam preparation)</li> </ul>
<p><b>6</b></p>	<p><b>Form of examination, duration and examination requirements</b></p> <ul style="list-style-type: none"> <li>• Preliminary examination according to §10 Abs. 4 ABPO amended version of 2.7.2019: Presentation/pre-calculation of two given exercises.</li> <li>• The share of the preliminary examination performance in the module grade is 25%.</li> <li>• Examination: As a rule, processing of a case study with presentation of results in the sense of §10 para. 3 ABPO amended version of 2.7.2019 at the end of the module (duration: 3 hours). The share of the examination performance in the module grade is 75%.</li> <li>• Share of presentation of results: 25% of the examination performance.</li> <li>• Students have the opportunity to repeat the examination and the preliminary examination in the following semester.</li> </ul>
<p><b>7</b></p>	<p><b>Necessary knowledge</b></p> <p>Bachelor level: business English, business mathematics, investment and finance</p>

<p><b>8</b></p>	<p><b>Recommended knowledge</b></p> <p>English to the extent of level B2 in the area of "Profession" (Common European Framework of Reference/GER), MS-EXCEL, Corporate Finance.</p>
<p><b>9</b></p>	<p><b>Duration, time structure and frequency of the offer</b></p> <ul style="list-style-type: none"> <li>• Duration: 1 semester</li> <li>• Offered: each winter semester,</li> <li>• Scope: 4 SWS</li> </ul>
<p><b>10</b></p>	<p><b>Usability of the module</b></p> <p>The module is suitable for master's degree programs in energy economics.</p>
<p><b>11</b></p>	<p><b>Literature</b></p> <p>Current editions of the following books:</p> <ul style="list-style-type: none"> <li>• Marest, L.; Errera, S.: Fundamentals of Trading Energy Futures &amp; Options. PennWell Books.</li> <li>• Schwintowski, H. P. (ed.): Handbuch Energiehandel. ESV.</li> <li>• Mack, I. M.: Energy Trading and Risk Management. John Wiley &amp; Sons.</li> <li>• Zenke, I.; Schäfer, R.: Energy Trading in Europe: Oil, Gas, Electricity, Derivatives, Certificates. C.H.Beck</li> </ul> <p>Additional references will be given in lecture.</p>

<b>1</b>	<b>Module name</b> Project development, evaluation and financing of decentralized energy systems
<b>1.1</b>	<b>Module abbreviation</b> 423
<b>1.2</b>	<b>Type</b> Mandatory Module
<b>1.3</b>	<b>Course</b> Project development, evaluation and financing of decentralized energy systems
<b>1.4</b>	<b>Semester</b> Semester 2
<b>1.5</b>	<b>Module manager</b> Dr. Kerstin Hooß
<b>1.6</b>	<b>Other teachers</b> Lecturers of the department W
<b>1.7</b>	<b>Degree level</b> Master
<b>1.8</b>	<b>Teaching language</b> German
<b>2</b>	<p><b>Content</b></p> <p>From an entrepreneurial perspective, this module deals with the aspects to be considered in the context of construction projects of decentralized energy systems and the realization of decentralized business models. From planning and evaluation to financing and project planning, methods and procedures are presented. The focus of this module is on the economic, ecological, technical and legal particularities to be taken into account in the environment of a decentralized energy supply. In particular, the following topics will be dealt with:</p> <ul style="list-style-type: none"> <li>• Foundations for the development of decentralized energy systems;</li> <li>• Framework conditions and challenges of different technologies;</li> <li>• Basics of project planning, development and control;</li> <li>• Actors, organizational structures and possible participation models;</li> <li>• Project financing: financing planning, forms and structures;</li> <li>• Risk quantification procedures (cash flow models and rating procedures);</li> <li>• Risk management (completion risks, financing risks, etc.);</li> <li>• Insurability.</li> </ul> <p>The students develop a business case within the framework of a given case study. This module builds on the module "Innovative and Sustainable Business Model Development" and focuses on economic parameters of business model development and project planning. The contents of this module are considered in both a national and international context.</p>



<p><b>3</b></p>	<p><b>Targets</b></p> <p>Successful completion of this module will enable students to:</p> <p><u>Knowledge:</u></p> <ul style="list-style-type: none"> <li>• Know the project planning of construction projects as well as the planning and evaluation of business models in the context of decentralized energy systems.</li> <li>• Master methods and procedures of planning and risk assessment as well as financing and insurability in the construction of energy systems.</li> </ul> <p><u>Skills:</u></p> <ul style="list-style-type: none"> <li>• Evaluate the complexity of e.g. onshore and offshore wind energy projects, solar projects as well as various business models</li> <li>• Recognize and consider economic, technical, legal, and environmental requirements of decentralized power generation systems.</li> <li>• Evaluate investment and financing decisions, and perform standard risk assessments.</li> </ul> <p><u>Competencies:</u></p> <ul style="list-style-type: none"> <li>• Apply the factual, social and methodological skills increased through the development of interdisciplinary contexts in context.</li> <li>• Lead critical discussions on project development, assessment, and financing of distributed energy systems.</li> </ul>
<p><b>4</b></p>	<p><b>Teaching and learning methods</b></p> <p>Teaching and learning methods: L, E, Sem, Pro Media used: beamer and blackboard</p>
<p><b>5</b></p>	<p><b>Workload and Credit Points</b></p> <ul style="list-style-type: none"> <li>• 5 CP</li> <li>• 150 hours of work</li> <li>• 64 hours of classroom study</li> <li>• 86 hours of self-study (preparation and follow-up, exam preparation)</li> </ul>
<p><b>6</b></p>	<p><b>Form of examination, duration and examination requirements</b></p> <ul style="list-style-type: none"> <li>• Examination in the form of a written examination (also e-examination). With regard to the duration of the examination, § 12 ABPO applies. This is taken into account with 50% in the overall assessment of the module.</li> <li>• Preliminary examinations (e.g. working on exercises or development tasks or case studies) - also in group work, are graded with 50% of the module grade.</li> <li>• Students may retake the examinations in the following semester.</li> <li>• Passing the preliminary examination is a prerequisite for participation in the written examination.</li> </ul>

<p><b>7</b></p>	<p><b>Necessary knowledge</b></p> <p>Lectures: Introduction to the energy industry, energy industry structures, investment and financing, renewable energies, technology of energy plants, innovative and sustainable business model development</p>
<p><b>8</b></p>	<p><b>Recommended knowledge</b></p> <p>Understanding of energy economics and energy technology.</p>
<p><b>9</b></p>	<p><b>Duration, time structure and frequency of the offer</b></p> <ul style="list-style-type: none"> <li>• Duration: 1 semester</li> <li>• Offer: every summer semester</li> <li>• Scope: 4 SWS</li> </ul>
<p><b>10</b></p>	<p><b>Usability of the module</b></p> <p>Lecture: Corporate Finance and Business Valuation; Business administration and other master's degree programs in which problems of project development, project financing and profitability considerations are taught</p>
<p><b>11</b></p>	<p><b>Literature</b></p> <p>Current editions of the following books:</p> <ul style="list-style-type: none"> <li>• Backhaus, K.; Werthschulte, H.: Projektfinanzierung: Wirtschaftliche und rechtliche Aspekte einer Finanzierungsmethode für Großprojekte. Schäffer-Poeschel.</li> <li>• Böttcher, J.; Blattner, P.: Project Finance: Risk Management and Financing. Springer.</li> <li>• Erdmann, G.; Zweifel, P.: Energieökonomik. Munich: Springer Gabler.</li> <li>• Karl, J.: Decentralized energy systems: New technologies in the liberalized energy market. Oldenburg.</li> <li>• Konstantin, P.: Praxisbuch Energiewirtschaft. Energy conversion, transport and procurement in the liberalized market. Springer.</li> <li>• Zischg, K.: Planung und bewerten Investitionen. Haufe.</li> </ul> <p>Additional recommended reading will be provided in the course.</p>

<b>1</b>	<b>Module name</b> Human Resource Management, Leadership and Change Management
<b>1.1</b>	<b>Module abbreviation</b> 424
<b>1.2</b>	<b>Type</b> Mandatory Module
<b>1.3</b>	<b>Course</b> Human Resource Management, Leadership and Change Management
<b>1.4</b>	<b>Semester</b> 2
<b>1.5</b>	<b>Module manager</b> Dr. Anke Kopsch and Dr. Werner Stork
<b>1.6</b>	<b>Other teachers</b> Dr. Heike Nettelbeck
<b>1.7</b>	<b>Degree level</b> Master
<b>1.8</b>	<b>Teaching language</b> German (literature and documents in the lecture and in the exercises partly also in English)
<b>2</b>	<p><b>Content</b></p> <p>Introduction: human resource management, leadership and management in challenging operational situations</p> <p>Human Resource Management:</p> <ul style="list-style-type: none"> <li>• Definition of terms and classification in the management and organization of companies</li> <li>• Human Resource Management and Human Relationship Management</li> <li>• Core functions of human resource management             <ul style="list-style-type: none"> <li>○ Human Resources Management</li> <li>○ Personnel development</li> <li>○ Personnel marketing</li> <li>○ Personnel controlling</li> </ul> </li> </ul> <p>Leadership:</p> <ul style="list-style-type: none"> <li>• Definition of terms: Management, leadership and leadership</li> <li>• Dimensions of leadership and the specific characteristics of leadership             <ul style="list-style-type: none"> <li>○ Entrepreneurial thinking and action as well as culture and value management,</li> <li>○ Manage tasks and develop visions and goals,</li> <li>○ Leading employees and leading teams,</li> <li>○ "Leading" the supervisor and working with other managers,</li> <li>○ Self-management and the development of resources</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• Effective leadership behavior and successful leadership styles in challenging operational situations</li> <li>• selected forms of leadership and leadership</li> </ul> <p>Change Management:</p> <ul style="list-style-type: none"> <li>• Definition of terms: Project management, change management and transformation processes</li> <li>• Dimensions of change and specific features in phases of change             <ul style="list-style-type: none"> <li>○ Actors, participants and stakeholders in change processes</li> <li>○ Complexities as well as risks, uncertainties and insecurities in change processes</li> <li>○ Phases of change (the classic models according to Lewin and Kotter)</li> <li>○ Technical, process-related and personnel/cultural maturity levels in change processes</li> <li>○ Informing, communicating and learning in change processes</li> </ul> </li> <li>• Systemic approaches to change management (esp. goal vs. process orientation)</li> <li>• Organizational transformation processes</li> </ul> <p>Case studies on current demanding operational challenges (complex change or transformation tasks)</p>
<p><b>3</b></p>	<p><b>Targets</b></p> <p>Successful completion of this module will enable students to:</p> <p><u>Knowledge:</u></p> <ul style="list-style-type: none"> <li>• Human Resource Management, Leadership and Change Management as special Present quality characteristics of operational management and describe their function, characteristics, and importance, especially in challenging operational situations.</li> <li>• Present and explain the basic concepts of motivation, learning, and relevant operational frameworks as they relate to promoting performance.</li> <li>• Explain systematic approaches, the parties involved, the different levels of maturity and dimensions of transformation processes in their form and effect, and explain them in complex initial situations (classic models for change management).</li> <li>• Present and explain the dimensions of human resource management and leadership and the specific characteristics of modern human resource management.</li> </ul> <p><u>Skills:</u></p> <ul style="list-style-type: none"> <li>• Analyze operational situations using the relevant models and concepts.</li> <li>• Select the appropriate concepts in the area of human resource management, leadership as well as change management to meet the operational challenges.</li> <li>• Derive the appropriate measures in the field of management and leadership, according to the classical models of Lewin and Kotter.</li> <li>• Independently work out when and to what extent further systematic approaches and concepts for organizational transformation processes can be applied. (especially for the accomplishment of operational tasks).</li> </ul> <p><u>Competencies:</u></p> <ul style="list-style-type: none"> <li>• Analyze case studies on current demanding operational challenges (change or transformation tasks)</li> <li>• Design, present and defend convincing solutions based on the approaches and concepts of human resource management, leadership and change management (e.g. via a written paper or a presentation).</li> </ul>

<p><b>4</b></p>	<p><b>Teaching and learning methods</b></p> <p>Teaching forms: Seminar lecture (L) with lecture hall exercises (E) Media used: beamer/whiteboard presentations, lecture notes, worksheets (exercises) and electronic learning platform</p>
<p><b>5</b></p>	<p><b>Workload and Credit Points</b></p> <ul style="list-style-type: none"> <li>• 5 CP</li> <li>• Total workload of 150 hours</li> <li>• Attendance time: 64 hours</li> <li>• Self-study: 86 hours (preparation and follow-up, elaborations, exam preparation)</li> </ul>
<p><b>6</b></p>	<p><b>Form of examination, duration and examination requirements</b></p> <ul style="list-style-type: none"> <li>• Examination in the form of a written examination (also e-examination). With regard to the duration of the examination, § 12 ABPO applies. This is taken into account with 70% in the overall assessment of the module.</li> <li>• Examination in the form of a term paper. This will be taken into account with 30% in the overall assessment of the module.</li> <li>• Preparatory work for examinations (e.g. laboratory experiments, processing of exercise or development tasks) - also in group work - are possible. Preliminary examinations can be graded or ungraded. In the case of graded preliminary examinations, the share of the module grade may not exceed 30%.</li> <li>• Students may retake the examinations in the following semester.</li> <li>• If preliminary examinations are required, passing the preliminary examination is a prerequisite for participation in the examination.</li> </ul>
<p><b>7</b></p>	<p><b>Necessary knowledge</b></p> <p>Bachelor's degree in business administration</p>
<p><b>8</b></p>	<p><b>Recommended knowledge</b></p> <p>None</p>
<p><b>9</b></p>	<p><b>Duration, time structure and frequency of the offer</b></p> <ul style="list-style-type: none"> <li>• Duration: 1 semester</li> <li>• Offer: every semester</li> <li>• Scope: 4 SWS</li> </ul>
<p><b>10</b></p>	<p><b>Usability of the module</b></p> <p>Business Administration (M.Sc.), can also be used in a similar form in other master's programs in business administration</p>
<p><b>11</b></p>	<p><b>Literature</b></p> <p>Current editions of the following books:</p> <ul style="list-style-type: none"> <li>• Christensen, C. L.: The Innovator's Dilemma. Harvard Business Review Press.</li> <li>• Kotter, J. P., Rathgeber, H.: The Penguin Principle. Droemer HC.</li> <li>• Bruch, H., Krummacker, S., Vogel, B.: Leadership - Best Practices and Trends. Springer Gabler.</li> <li>• Lang, R., Rybnikova, I. (Eds.): Current leadership theories and concepts. Springer Gabler.</li> <li>• Malik, F.: Führen Leisten Leben. Campus Verlag.</li> </ul>

- Neuberger, O.: Führen und führen lassen. UTB.
- Stock-Homburg, R., Groß, M.: Personalmanagement: Theorien - Konzepte - Instrumente. Springer Gabler.
- Sprenger, R. K.: Mythos Motivation: Wege aus einer Sackgasse. Campus Verlag.
- von der Oelsnitz, D.: Einführung in die systemische Personalführung. Carl-Auer Verlag.

Additional and alternative literature recommendations in the course.

<b>1</b>	<b>Module name</b> Risk and portfolio management in the energy industry
<b>1.1</b>	<b>Module abbreviation</b> 425
<b>1.2</b>	<b>Type</b> Mandatory Module
<b>1.3</b>	<b>Course</b> Risk and portfolio management in the energy industry
<b>1.4</b>	<b>Semester</b> 2
<b>1.5</b>	<b>Module manager</b> Dr. Sebastian Herold
<b>1.6</b>	<b>Other teachers</b> Lecturers of the department W
<b>1.7</b>	<b>Degree level</b> Master
<b>1.8</b>	<b>Teaching language</b> German (supplemented by English texts if necessary)
<b>2</b>	<p><b>Content</b></p> <p>In this course, students gain in-depth insights into the risk management of energy companies and the methods and instruments used in this context. Special attention is given to risk management in energy trading, which is closely linked to portfolio management. Essential contents of this course are:</p> <ul style="list-style-type: none"> <li>• Risk, risk perception and risk management</li> <li>• Legal framework</li> <li>• Identification and assessment of risks</li> <li>• Management and monitoring of risks</li> <li>• Risks in energy trading</li> <li>• Responsibilities and regulatory framework for risks in energy trading</li> <li>• Measurement of risks in energy trading and risk reporting</li> <li>• Measures to limit risks in energy trading</li> </ul>

<p><b>3</b></p>	<p><b>Targets</b></p> <p>Successful completion of this module will enable students to:</p> <p><u>Knowledge:</u></p> <ul style="list-style-type: none"> <li>• Know the basics of risk management and deepening in relation to energy trading.</li> <li>• Master relevant legal principles, methods and instruments of risk management.</li> </ul> <p><u>Skills:</u></p> <ul style="list-style-type: none"> <li>• Understand and perform basic risk management in energy companies.</li> <li>• Apply the relevant tools as appropriate to the situation, depending on the type of risk and company.</li> </ul> <p><u>Competencies:</u></p> <ul style="list-style-type: none"> <li>• Classify the relevance of risk management, especially in energy trading.</li> <li>• Evaluate the design of specific risk management processes and assess their company-specific adequacy.</li> <li>• Increased social and methodological competence through the selected forms of teaching and learning as well as through group work and presentations appropriate to the target group.</li> <li>• Conduct reflection and lead critical discussions.</li> </ul>
<p><b>4</b></p>	<p><b>Teaching and learning methods</b></p> <p>Teaching and learning methods: L, E, Sem, Pro Media used: esp. beamer, whiteboard</p>
<p><b>5</b></p>	<p><b>Workload and Credit Points</b></p> <ul style="list-style-type: none"> <li>• 5 CP</li> <li>• 150 hours of work</li> <li>• 64 hours of classroom study</li> <li>• 86 hours of self-study (preparation and follow-up, elaborations, exam preparation)</li> </ul>
<p><b>6</b></p>	<p><b>Form of examination, duration and examination requirements</b></p> <ul style="list-style-type: none"> <li>• Assessed preliminary examination in the form of a subject-specific paper (according to §10 para. 4 ABPO) in small groups. Proportion of the module grade 40%.</li> <li>• Examination in the form of a written test on the entire course content at the end of the module. Duration 90min. Proportion of the module grade 60%</li> <li>• Possibility to repeat the exam in the following semester</li> </ul>
<p><b>7</b></p>	<p><b>Necessary knowledge</b></p> <p>Knowledge as usually taught in the following courses: Fundamentals of Energy and Business Law, Investment and Financing, Internal Accounting, External Accounting.</p>



<b>8</b>	<p><b>Recommended knowledge</b></p> <p>-</p>
<b>9</b>	<p><b>Duration, time structure and frequency of the offer</b></p> <ul style="list-style-type: none"> <li>• Duration: 1 semester</li> <li>• Offered every winter semester</li> <li>• Scope: 4 SWS</li> </ul>
<b>10</b>	<p><b>Usability of the module</b></p> <p>Business administration and other courses in which problems of risk and portfolio management are taught</p>
<b>11</b>	<p><b>Literature</b></p> <p>Current editions of the following books:</p> <ul style="list-style-type: none"> <li>• Gleißner, W.: Grundlagen des Risikomanagements, Controlling, Unternehmensstrategie und wertorientiertes Management. Vahlen.</li> <li>• Romeike, F.: Risk Management. Springer Gabler</li> <li>• Romeike, F.; Hager, P.: Erfolgsfaktor Risikomanagement 3.0, Methoden, Beispiele, Checklisten Praxishandbuch für Industrie und Handel. Springer Gabler.</li> <li>• Schwintowski, H.; Scholz, F.; Schuler, A.: Handbuch Energiehandel. Schmidt.</li> <li>• Zenke, I.; Schäfer, R.: Energy trading in Europe, oil, gas, electricity, derivatives, certificates. LexisNexis</li> </ul> <p>Additional recommended reading will be provided in the course.</p>

<b>1</b>	<b>Module name</b> Elective module
<b>1.1</b>	<b>Module abbreviation</b> 416, 426
<b>1.2</b>	<b>Type</b> Optional Module
<b>1.3</b>	<b>Course</b> Project module
<b>1.4</b>	<b>Semester</b> Semester 1 and 2
<b>1.5</b>	<b>Module manager</b> Dr. Kerstin Hooß
<b>1.6</b>	<b>Other teachers</b> All teachers at the department of economics
<b>1.7</b>	<b>Degree level</b> Master
<b>1.8</b>	<b>Teaching language</b> German or English
<b>2</b>	<b>Content</b>  The content of the topic module is innovative and current topics in the energy industry. These can deal with technical, economic or interdisciplinary content. The individual topics offered are newly designed each semester by the department and communicated to the students.
<b>3</b>	<b>Targets</b>  <u>Knowledge:</u> <ul style="list-style-type: none"> <li>Identify, evaluate and learn the specifics of the issues posed in each case and the new topics from the economic, technical and legal points of view from the perspective of the energy industry.</li> </ul> <u>Skills:</u> <ul style="list-style-type: none"> <li>Understand and evaluate the opportunities and limitations of the energy industry,</li> <li>work out and learn novel topics independently,</li> <li>Application of methods (e.g. workshop planning and implementation, knowledge management and project management methods).</li> </ul> <u>Competencies:</u> <ul style="list-style-type: none"> <li>Development of interdisciplinary connections (technical-economic and social-ecological),</li> </ul>

	<ul style="list-style-type: none"> <li>Engage in critical discussions on a wide variety of energy industry topics.</li> <li>apply social skills acquired through exercises (including group work) and workshops in context.</li> </ul>
<b>4</b>	<p><b>Teaching and learning methods</b></p> <p>Lecture (L), Exercise (E), possibly seminar (Sem)            Media used: communication media (e.g. electronic learning platforms), presentation media (e.g. beamer, whiteboard, flipchart, smartboard, metaplan)</p>
<b>5</b>	<p><b>Workload and Credit Points</b></p> <p>Total workload of 150 hours for 5 credit points (CP).            Attendance time: 64 hours (presentation of progress reports and final reports, coordination in the project team)            Self-study: 86 hours (other activities in the individual project phases planning, implementation and completion)</p>
<b>6</b>	<p><b>Form of examination, duration and examination requirements</b></p> <ul style="list-style-type: none"> <li>Examination in the form of a term paper or a written exam. This will be taken into account with 60% in the overall assessment of the module.</li> <li>Preliminary examinations (e.g. working on exercises or development tasks, workshops or case studies) - also in group work, are graded with 40% of the module grade.</li> <li>Students may retake the examinations in the following semester.</li> </ul>
<b>7</b>	<p><b>Necessary knowledge</b></p> <p>None</p>
<b>8</b>	<p><b>Recommended knowledge</b></p> <p>Depending on the respective objective of the topic/content</p>
<b>9</b>	<p><b>Duration, time structure and frequency of the offer</b></p> <p>The module covers one semester with 4 SWS and is offered once per semester.</p>
<b>10</b>	<p><b>Usability of the module</b></p> <p>Master thesis</p>
<b>11</b>	<p><b>Literature</b></p> <p>Depending on the topic of the elective module</p>

<b>1</b>	<b>Module name</b> Master thesis module
<b>1.1</b>	<b>Module abbreviation</b> 431
<b>1.2</b>	<b>Type</b> Mandatory Module
<b>1.3</b>	<b>Course</b> Master thesis module
<b>1.4</b>	<b>Semester</b> Semester 3 or 4 (depending on whether you belong to the 3- or 4-semester program).
<b>1.5</b>	<b>Module manager</b> Dr. Hooß
<b>1.6</b>	<b>Other teachers</b> All full-time faculty in the department or program.
<b>1.7</b>	<b>Degree level</b> Master
<b>1.8</b>	<b>Teaching language</b> German or English
<b>2</b>	<b>Content</b> The master thesis module consists of a master thesis and a colloquium. It includes the independent preparation of an elaboration on a defined topic according to scientific methods and its presentation.
<b>3</b>	<b>Targets</b> Knowledge:  Students are able to explain the requirements of scientific work and to describe challenges (e.g. literature research and source management, compliance with formal requirements, structuring of topics, comprehensible, balanced and error-free formulation) as well as efficient possible solutions in this regard.  Skills:  Students are able to work on a problem from the field of energy economics independently and in a practice-oriented manner according to scientific methods by linking and deepening specific areas of knowledge within the framework of the problem in an argumentative manner and presenting it in a coherent manner.

	<p>Students are also able to present the knowledge gained from writing the master's thesis in a comprehensible and target group-oriented manner. They can, on the basis of a problem, develop a specific objective for the thesis and, by applying scientific methods, produce an understandable, balanced and error-free result for this that leads to a gain in knowledge.</p> <p>Competencies:</p> <p>Students will be able to evaluate the knowledge gained in the course of writing the master's thesis and draw conclusions from it.</p>
<b>4</b>	<p><b>Teaching and learning methods</b></p> <p>Thesis</p> <p>Media used: communication media (e.g. email), presentation media for the presentation of the activities carried out (e.g. beamer, whiteboard, flipchart, smartboard, metaplan)</p>
<b>5</b>	<p><b>Workload and Credit Points</b></p> <p>Total workload of 900 hours for 30 credit points (CP) for the preparation of the master's thesis and for the processing, presentation and presentation of the results.</p>
<b>6</b>	<p><b>Form of examination, duration and examination requirements</b></p> <p>Examination in the form of the master's thesis and the colloquium. The examination can be repeated in the following semester.</p> <p>Requirements for the participation in the module and the examination result from § 12 Abs. 4 BBPO.</p>
<b>7</b>	<p><b>Necessary knowledge</b></p> <p>Requirements for the participation in the module and the examination result from § 12 Abs. 4 BBPO.</p>
<b>8</b>	<p><b>Recommended knowledge</b></p> <p>Depending on the objective of the master's thesis.</p>
<b>9</b>	<p><b>Duration, time structure and frequency of the offer</b></p> <p>The module covers a period of 6 months and is offered in both summer and winter semesters.</p>
<b>10</b>	<p><b>Usability of the module</b></p> <p>The module cannot be used for other courses of study.</p>
<b>11</b>	<p><b>Literature</b></p> <p>Depending on the objective of the master's thesis.</p>