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| <b>Course Title</b>      | Energy and Environmental Policies   |                 |   |                   |   |
| <b>Course Code</b>       | MEEB 503  |                 |   |                   |   |
| <b>Course Type</b>       | Elective  |                 |   |                   |   |
| <b>Level</b>             | Masters (2 <sup>nd</sup> Level)   |                 |   |                   |   |
| <b>Year / Semester</b>   | 1 <sup>st</sup> year/ 2 <sup>nd</sup> semester or 2 <sup>nd</sup> year/ 3 <sup>rd</sup> semester  |                 |   |                   |   |
| <b>Teacher's Name</b>    | Dr. Angeliki Kylili   |                 |   |                   |   |
| <b>ECTS</b>              | 10  | Lectures / week | 3 | Laboratories/week | 0 |
| <b>Course Purpose</b>    | <p>This course will cater to discussions on energy policies and market structures, and especially, how energy markets are affected from policies and government regulation, European Directives and the environment, in synergy to economic aspects. Discussion on the liberalization and integration of energy markets generates the critical thinking and the ability to apprehend the trends and changes on energy market. Moreover, and focusing on energy efficiency, the electricity market is also examined as well as the building market, parameters which seriously influence the energy consumption. Finally national schemes and regulations relevant to CO2 emissions are presented in relation to energy market. Such topics as the energy design of buildings, the Kyoto Protocol and the use of Carbon-based levies, and national schemes for promoting energy efficiency and renewable sources will be discussed.</p>          |                 |   |                   |   |
| <b>Learning Outcomes</b> | <p>By the end of the course, students must be able to:</p> <ol style="list-style-type: none"> <li>1. Describe the main aspects of the energy union</li> <li>2. Outline the main policies implemented in the EU to promote energy security, solidarity and trust</li> <li>3. Analyze the European Acquis concerning the establishment of a fully integrated energy market</li> <li>4. Explain the content of directives and regulations in the field of energy efficiency of buildings, industries and products</li> <li>5. Define the policies for the promotion of production of energy with renewable sources.</li> <li>6. Name the main R&amp;I initiatives in EU for the field of energy and environment</li> <li>7. Identify the main energy related policies in Cyprus.</li> <li>8. Discuss on the objectives of climate change mitigation strategies</li> <li>9. Understand the main principles of the demand side management</li> </ol> |                 |   |                   |   |

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|                       | <p>10. Argue on the importance of the energy production, consumption and trade and raise fundamental economic issues that impact the global economy and financial markets</p> <p>11. Describe the evolution of smart grids, and explain the correlation of smart grids to the European 2020 policies.</p>   |                     |      |
| <b>Prerequisites</b>  | Prior taught experience on energy engineering issues or instructor's approval   | <b>Corequisites</b> | None |
| <b>Course Content</b> | <p><b>1. Introduction – Energy Union</b></p> <ul style="list-style-type: none"> <li>- Introduction – European Union Governance</li> <li>- Energy Union</li> <li>- Second Report on the state of the Energy Union</li> </ul> <p><b>2. Energy Security – Solidarity and Trust</b></p> <ul style="list-style-type: none"> <li>- Introduction – Imports and Secure Supplies</li> <li>- Energy Security Strategy</li> <li>- Secure Supplies of Gas and Oil</li> <li>- Oil and Gas Security and Supply in Cyprus</li> </ul> <p><b>3. A fully integrated European energy market</b></p> <ul style="list-style-type: none"> <li>- Introduction – Connecting energy markets and regions</li> <li>- Project of Common Interest</li> <li>- Markets and Consumers</li> <li>- Energy interconnection and electricity market in Cyprus</li> </ul> <p><b>4. Energy Efficiency: Saving energy, saving money</b></p> <ul style="list-style-type: none"> <li>- Introduction: Saving energy, saving money</li> <li>- Energy Efficiency Directive</li> <li>- Energy Efficiency – Buildings</li> <li>- Energy efficient products</li> <li>- Advancements in energy efficiency in Cyprus</li> </ul> <p><b>5. Decarbonising the economy</b></p> <ul style="list-style-type: none"> <li>- Introduction – Moving towards a low carbon economy</li> <li>- Renewable Energy</li> <li>- Energy Roadmap 2050</li> <li>- Advancements in the field of Renewable Energy in Cyprus</li> </ul> <p><b>6. Technology and innovation - Accelerating the energy transition</b></p> <ul style="list-style-type: none"> <li>- Introduction - Accelerating the energy transition</li> <li>- Strategic Energy Technology Plan</li> <li>- Horizon 2020</li> </ul> |                     |      |

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|                                    | <ul style="list-style-type: none"> <li>- R&amp;D Performance of Cyprus</li> </ul> <p><b>7. EU Emissions Trading System (EU ETS)</b></p> <ul style="list-style-type: none"> <li>- Introduction: EU Climate Action</li> <li>- Design of EU ETS</li> <li>- Implementation of EU ETS</li> <li>- Outlook beyond 2020</li> <li>- Contribution of EU ETS</li> <li>- EU ETS in Cyprus</li> </ul> <p><b>8. Environmental Impact Assessment (EIA)</b></p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- European EIA legislation</li> <li>- Transboundary projects and PCIs</li> <li>- EIA in Cyprus</li> </ul> <p><b>9. Circular Economy</b></p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Resource Efficient Europe</li> <li>- Circular Economy</li> <li>- Implementation and Next Steps</li> </ul>  |
| <p><b>Teaching Methodology</b></p> | <p>The course will be presented through theoretical lectures in class. The lectures will present to the student the course content and allow for questions. Part of the material will be presented using visual aids. The aim is to familiarize the student with the different and faster pace of presentation and also allow the instructor to present related material that would otherwise be very difficult to do.</p> <p>The learning process will be enhanced with the requirement from the student to solve exercises. These include self-evaluation exercises which will be solved in class. These exercises will not be graded. Exercises will also be given as homework (final project) which will be part of their assessment.</p> <p>Besides from the notes taken by students in class, all of the course material will be made available through the class website and also through the eLearning platform. The instructor will also be available to students during office hours or by appointment in order to provide any necessary tutoring.</p> |
| <p><b>Bibliography</b></p>         | <p><b>Textbook:</b><br/>Mitsutsune Yamaguchi, Ed. Climate Change Mitigation A Balanced Approach to Climate Change. ISBN 978-1-4471-4227-0. Springer, 2013.</p> <p><b>References:</b></p>   |

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|                   | <ol style="list-style-type: none"> <li>1. Zhaoguang Hu, Xinyang Han, Quan Wen et al.. Integrated Resource Strategic Planning and Power Demand-Side Management. Springer, ISBN 978-3-642-37083-0, 2013.</li> <li>2. Gheorghe, A.. Energy Security International and Local Issues, Theoretical Perspectives, and Critical Energy Infrastructures, 2011. ISBN 978-94-007-0721-4, Springer.</li> <li>3. Economic Development and Environmental Sustainability, Ramon Lopez, Michael A. Toman, Oxford University Press, 2006</li> <li>4. Renewable Energy Policy, Paul Komor, iUniverse, 2004</li> </ol>                                       |
| <b>Assessment</b> | <p>Students will be assessed through:</p> <ul style="list-style-type: none"> <li>- A midterm test at the 7<sup>th</sup> week of the course</li> <li>- A personal assignment which will be handed out at the beginning of the semester (week 2) and will be collected by completion of semester (week 12).</li> <li>- A final test at the end of the semester, in which all material will be examined.</li> </ul> <p>The weights of the course assessment are as follows:</p> <p style="padding-left: 40px;">Assignment: 20%</p> <p style="padding-left: 40px;">Midterm Exams: 20%</p> <p style="padding-left: 40px;">Final Exams: 60%</p> |
| <b>Language</b>   | English and Greek   |