

COURSE OUTLINE

1. GENERAL INFORMATION

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| SCHOOL | MARITIME AND INDUSTRIAL STUDIES | | |
| DEPARTMENT | INDUSTRIAL MANAGEMENT AND TECHNOLOGY | | |
| LEVEL OF STUDY | UNDERGRADUATE | | |
| COURSE UNIT CODE | TENEP01 | SEMESTER OF STUDY | 7 th |
| COURSE TITLE | ENERGY AND CLIMATE POLICY (ELECTIVE COURSE) | | |
| INDEPENDENT TEACHING ACTIVITIES <i>in case in which credits are awarded for separate components/parts of the course, e.g. in lectures, laboratory exercises, etc. If credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i> | | WEEKLY TEACHING HOURS | CREDITS |
| Lectures, Exercises, Project | | | 5.5 |
| <i>Add rows if necessary. The organization of teaching and the teaching methods used are described in detail at section 4.</i> | | | |
| COURSE TYPE <i>general background, special background, specialized general knowledge, skills development</i> | Special background | | |
| PREREQUISITE COURSES: | None | | |
| LANGUAGE OF INSTRUCTION and EXAMINATION/ASSESSMENT: | Greek / English (in ERASMUS class) | | |
| THE COURSE IS OFFERED TO ERASMUS STUDENTS | Yes | | |
| COURSE WEBSITE (URL) | https://eclass.unipi.gr/courses/MIS103/ | | |

2. LEARNING OUTCOMES

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| <p>LEARNING OUTCOMES</p> <p><i>The course learning outcomes, specific knowledge, skills and competences of an appropriate (certain) level, which students will acquire upon successful completion of the course, are described in detail. It is necessary to consult:</i></p> <p>APPENDIX A</p> <ul style="list-style-type: none"> • Description of the level of learning outcomes for each qualifications' cycle, according to the European Higher Education Area's Qualification Framework. • Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and APPENDIX B • Guidelines for writing Learning Outcomes |
| <p>Integrated study of energy systems requires knowledge of their impact on the environment, and in particular on the aggravation of the greenhouse effect, which is constantly subjected to new binding decisions with a direct impact on their structure and development. These binding decisions have a significant impact on industry. Under these circumstances, industry needs to respond to appropriate technology choices, energy resource management and the use of appropriate energy and climate policy tools to maintain its competitiveness. In this context, this course analyzes the basic policy tools (tariff subsidies, application of standards, certificates, emissions trading, etc.) and examines the interactions resulting from their implementation.</p> <p>The objectives of the course are to develop the appropriate cognitive background in designing and implementing key energy and climate policy tools that will allow graduates to:</p> <ul style="list-style-type: none"> • Understand the evolution of the wider energy and climate policy framework at national, European and international level • Understand the design features and the operation of key energy and climate policy tools |

- Evaluate the available policy tools in terms of effectiveness, efficiency and the potential for their exploitation by businesses and organizations

General Competences

Taking into consideration the general competences that students/graduates must acquire (as those are described in the Diploma Supplement and are mentioned below), at which of the following does the course attendance aims

Search for, analysis and synthesis of data and information, by the use of technologies that are necessary according the case

Adapting to new situations

Decision-making

Independent work

Team work

Working in an international environment

Working in an interdisciplinary environment

Introduction of innovative research

Project planning and management

Respect for difference and multiculturalism

Environmental awareness

Social, professional and ethical responsibility and sensitivity to gender issues

Critical consciousness, criticism and self-criticism

Development of free, creative and inductive thinking

- Search for, analysis and synthesis of data and information, by the use of technologies that are necessary according the case
- Adapting to new situations
- Decision-making
- Independent work
- Team work
- Project planning and management
- Respect for difference and multiculturalism
- Environmental awareness
- Social, professional and ethical responsibility and sensitivity to gender issues
- Critical consciousness, criticism and self-criticism
- Development of free, creative and inductive thinking

2. COURSE CONTENT

The course covers the following topics:

| Week | Topic |
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| 1 | Introduction and development of the framework: The three-fold objective of the European energy and climate policy - Types of energy and climate policy tools and description of the operation of their key mechanisms (from theory to practice) - Key elements of energy and climate policy (case study: Greece) |
| 2 | Policy tools: Analysis of the terms "Policy, Policy Tool" - Types of energy and climate policy (categorization) - Key policy examples and use - Implementation in Europe by category (why certain policies are more common) - Policies evaluation principles - Policy effectiveness (How it is defined) - Cost effectiveness of policy benefits (How it is defined and calculated: for business, consumer, the state) |
| 3 | Regulations: Regulations in different energy sectors - Energy efficiency of buildings - Stakeholders - Policy effectiveness - Positive / Negative impacts - Building sector work, savings and final greenhouse gas emissions |
| 4 | Regulations: Regulations in different energy sectors - Energy efficiency of buildings - Stakeholders - Policy effectiveness - Positive / Negative impacts - Building sector work, savings and final greenhouse gas emissions |
| 5 | Policy & Subsidy financial tools: Energy savings subsidies - Supply (fixed tariffs) for renewable energies - Positive / Negative impacts - Case study |
| 6 | Policy financial tools & taxes: Energy and environmental taxes - Examples of taxes and differences per Member State - Carbon tax - Positive / Negative impacts - Case study |

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| 7 | Policy financial tools & taxes: Energy and environmental taxes - Examples of taxes and differences per Member State - Carbon tax - Positive / Negative impacts - Case study |
| 8 | Market Policies & Greenhouse Gas Licensing System: Emissions Trading Scheme - Domains Concerned - National Emissions Distribution Scheme (NAP) - Positive / Negative Impact - Case Study |
| 9 | Market Policies & Certificates: White Certificates for Energy Saving - Positive / Negative Impacts - Case Study |
| 10 | Market Policies & Certificates: Green Certificates - Applications in the European Union - Positive / Negative Impact - Case Study |
| 11 | Voluntary partnerships: Forms of agreements - Voluntary agreements on energy savings - Examples of agreements and impact analysis - Case study |
| 12 | Policy Comparison and Interactions: Comparison of Policies and Impact Analysis - Interactive Policies - Utilization by Businesses and Organizations - Case Study |
| 13 | Policy Comparison and Interactions: Comparison of Policies and Impact Analysis - Interactive Policies - Utilization by Businesses and Organizations - Case Study |

Also, case studies from the following bibliography are presented:

- Subhes C, Bhattacharyya, Energy Economics: Concepts, Issues, Markets and Governance, Springer, 2010.
- Nick Hanley, Jason F. Shogren, Benedikt White, Environmental Economics in Theory and Practice, Oxford University Press, 2007.
- Mohan Munasinghe, Peter Meier, Energy Policy Analysis and Modelling, Cambridge University Press, 2008.
- Dieter Helm, Environmental Policy: Objectives, Instruments and Implementation, Oxford University Press, 2000.
- Simon Dresner, Environmental Policy (Routledge Introductions to Environment), Earthscan 2nd edition, 2008.

Students participate in team projects involving a written essay and consultation simulation.

In addition, articles, audiovisual lecture material, web addresses, useful information and case studies are posted at eclass.

3. TEACHING METHODS - ASSESSMENT

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| TEACHING MODE <i>Face-to-face, in-class lecturing, on distance teaching and distance learning etc.</i> | In-class lecturing | |
| USE OF INFORMATION AND COMMUNICATION TECHNOLOGY <i>Use of ICT in Teaching, Laboratory Education, Communication with students</i> | Teaching: Lectures with audiovisual media, support of the learning process through the eclass platform Communication with students: face-to-face at office hours, email, eclass | |
| COURSE DESIGN <i>Description of teaching techniques, practices and methods: Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, clinical practice, Art Workshop, Interactive teaching, Educational visits, project, Essay writing, Artistic creativity, etc.</i> | Activity / Method | Semester Workload |
| <i>The study hours for each learning activity as well as the hours of non- directed study are given according to the principles of the ECTS</i> | Lectures | 52 |
| | Project (essay & consultation simulation) | 55 |
| | Self-study of lecture material and case studies | 28 |
| | Counselling | 0.5 |
| | Exams (written) | 2 |
| | | |
| | Course Total | 137.5 |

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| <p>STUDENT PERFORMANCE EVALUATION/ASSESSMENT METHODS</p> <p><i>Detailed description of the evaluation procedures: Language of evaluation, assessment methods, formative or summative (conclusive), multiple choice questionnaires, short- answer questions, open-ended questions, problem solving, written work, Essay/report, oral exam, public presentation, laboratory work, art interpretation, other.....etc</i></p> <p><i>Evaluation criteria are specifically defined and given as well as if and where they are reported and accessible to students.</i></p> | <p>Language of exams: Greek / English (in ERASMUS class)</p> <p>Assessment Methods: After the last lecture, the exam material is posted at eclass. The final course grade is formed as follows:</p> <ul style="list-style-type: none"> • By the participation of students in class activities (10%) • By the project (40%) (participation in the project and simulation of public consultation) • By the written exams (50%) taken in the examination period of the winter semester and, in case of failure, in the September resits <p>The written examination includes short-answer and open-ended questions. It is conducted with closed books.</p> <p>The evaluation of students with special learning difficulties in writing and reading (as certified and qualified by a competent institution) is performed according to the relevant procedure decided by the Department Assembly.</p> <p>Notification of the Assessment Criteria: The evaluation criteria are made known during the first lecture and are clearly stated on the course website and e-class. The answers to the exam questions are posted at eclass after the exam date. Students have the opportunity to discuss their exam paper with the course instructor (at the posted office hours) after the announcement of the course grades.</p> |
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4. SUGGESTED BIBLIOGRAPHY

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| <p><i>-Suggested Bibliography :</i></p> <p><i>-Scientific Journals:</i></p> <ul style="list-style-type: none"> • Energies Journal • International Journal of Sustainable Energy • Economics, Planning and Policy • Mitigation and Adaptation of Strategies for Global Change <p><i>-Lecture Notes</i></p> |
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