COURSE OUTLINE

(1) OVERVIEW

SCHOOL	MARITIME & INDUSTRY		
DEPARTMENT	INDUSTRIAL MANAGEMENT & TECHNOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	TETEX01	SEMESTER	7
COURSE TITLE	ENERGY TECHNOLOGIES & THE ENVIRONMENT		

DISCRETE TEACHING ACTIVITIES *In cases where ECTS credits are awarded to distinct components of the course (e.g., Lectures, Laboratory Exercises, etc.), please indicate them separately. If the credits are awarded as a whole for the entire course, please state the weekly teaching hours and the total number of credits*	WEEKLY TEACHING HOURS	ECTS
Lectures	4	5.5
Please add additional rows if needed. A detailed description of the teaching organization and instructional methods is provided in Section (4).		

COURSE TYPE *core (C), core elective (CE), elective (E) - background, specialization, skill development*	C - Specialization
PREREQUISITE COURSES:	None.
LANGUAGE OF TEACHING AND EXAMINATIONS:	Greek (English for ERASMUS students)
THIS COURSE IS AVAILABLE TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes

The learning outcomes of the course are described, specifying the particular knowledge, skills, and competencies at the appropriate level that students will acquire upon successful completion of the course.

Please refer to Appendix A

- *Description of the Level of Learning Outcomes for each study cycle according to the Qualifications Framework of the European Higher Education Area.*
- *Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B.*
- *Concise Guide for Writing Learning Outcomes*

The energy system includes the infrastructure for the conversion of primary energy sources into energy forms that can be transferred, distributed, stored and utilized by the end used. The most important elements of an energy system relate with its infrastructure, size and structure of its subsectors as well as the type and use of different energy forms in it. In the above framework, this course presents the structure of the energy system, the parameters that affect its evolution and basic approaches of evaluating its "quality".

Aim of the course is to develop the appropriate knowledge base that will allow graduates to:

- Identify potential opportunities of green economy (improvement of the efficiency of conventional systems, exploitation of renewable energy, energy policy instruments).
- Evaluate them.
- Choose the best options for their companies and organizations.
- Develop well documented recommendations or take informed decisions(depending on their position)regarding the above mentioned issues.

General Competences

Taking into account the general competences that a graduate should have acquired (as listed in the Diploma Supplement and outlined below), which of these competences does the course aim to develop?

Searching, analyzing, and synthesizing data and information, using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional, and ethical responsibility and sensitivity to gender issues
Exercising critical and self-critical thinking

Working in an international environment *Working in an interdisciplinary environment* *Generation of new research ideas*	*Promotion of free, creative, and inductive thinking* *…* *Other competences: …*

- Searching, analyzing, and synthesizing data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Demonstration of social, professional, and ethical responsibility and sensitivity to gender issues
- Exercising critical and self-critical thinking
- Promotion of free, creative, and inductive thinking

(3) COURSE CONTENT

The course covers the following topics:

- Energy system, energy problem, security of energy supply, techno-economics of energy systems, energy analysis of systems.
- Production and use of fossil fuels energy, technical characteristics of the systems.
- Electrical economy.
- Basic parameters of the exploitation of renewable energy sources (RES), wind energy, solar energy, hydro-energy.
- Critical environmental issues, limiting greenhouse gas emissions policy.
- Case studies.

Students are also presented with case studies from the international bibliography. Furthermore, articles, audiovisual lecture material, web links to useful resources, exercises, and software are uploaded in electronic format on the eClass platform.

(4) TEACHING and LEARNING METHODS - ASSESSMENT

TEACHING MODE *Face-to-face, in-class lecturing, distance teaching and distance learning etc.*	• Face-to-face in a classroom • Distance teaching & learning (if required)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY *Use of ICT in Teaching, Laboratory Education, Communication with students*	**Teaching**: Lectures using modern audiovisual equipment, learning support through the eClass electronic platform, synchronous distance teaching via MS Teams. **Communication with students**: face-to-face during office hours, email, eClass platform, MS Teams tools
Organization of Teaching *A detailed description of the teaching methods and approach is provided.* *Lectures, seminars, laboratory exercises, fieldwork, study and analysis of literature, tutorials, internships (placements), clinical practice, artistic workshops, interactive teaching, educational visits, project work, writing assignments, artistic creation, etc.* *The student's study hours for each learning activity, as well as the hours of independent study, are specified in accordance with the principles of ECTS*	

Activity	Semester Workload
Lectures	52
Case studies / exercises	26
Self-study of lecture material and exercises	57
Consultation Support	0.5
Exams (written)	2
Course Total	137.5

STUDENT ASSESSMENT *Description of the assessment process* *Language of assessment, assessment methods, formative or summative evaluation, multiple-choice tests, short-answer questions, essay questions, problem-solving, written assignments, reports, oral examinations, public presentations, laboratory work, clinical patient examination, artistic interpretation, other(s)* *Explicitly state assessment criteria and information on whether and where these criteria are accessible to students are included.*	**Language of Assessment**: Greek (English for ERASMUS students) **Assessment Mode**: Face-to-face and/or distance learning (if required) **Assessment Methods**: The final course grade is formed 100% by written exams either in the form of midterms or in the final exam taken in the examination period of the fall semester and, in case of failure, in the September resits. The written exam includes problem-solving exercises, short-answer and essay questions. It is conducted closed-book. Students may use a note with mathematical expressions.

	Students with Learning Difficulties: Students with certified learning difficulties in reading and writing (as recognized by the competent authority) are assessed according to the procedures established by the Department. **Disclosure of Assessment Criteria**: The assessment criteria are communicated during the first class and are clearly stated on the course website and the eClass platform. The exam syllabus is announced on eClass following the final lecture of the semester. The exam answers are posted on eClass after the examinations take place. Students have the right to review their graded exams and receive explanations regarding their grades. In cases of further requests, the procedures outlined in the current Study Regulations apply.

(5) SUGGESTED BIBLIOGRAPHY

- Books:

- Asimakopoulos, D., Arabatzis, G., Aggelis-Dimakis, A., Kartalidis, A., Tsiligridis, G. (2023). Renewable Energy Sources, 2nd Edition, Sophia Publications, ISBN: 9789606330445 [112701036] – in Greek
- Tsoutsos, Th., Kanakis, I. (2013). Renewable Energy Sources, Papasotiriou Publications, ISBN: 9789604910670 [22770910] – in Greek
- Polizakis, A. (2020). Energy, Environment and Sustainable Development, Polizakis Publications, ISBN: 9786188359062 [94645312]– in Greek

- Journals:

- Other educational material:

- Lecture Notes and Supporting Material provided by the Instructor