COURSE OUTLINE

(1) OVERVIEW

SCHOOL	MARITIME & INDUSTRY		
DEPARTMENT	INDUSTRIAL MANAGEMENT & TECHNOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	TEHMX03-1	SEMESTER	2
COURSE TITLE	INTRODUCTION TO ENGINEERING MECHANICS		

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 & Tutorials	4+1	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*

This course intends to introduce students to mechanics which provides the conditions of rest or movement of bodies that are stressed by external forces.

Upon successful completion of the course, the students will be able to:

- Analyze force vectors in plane and space.
- Obtain the centroid and determine equivalent force systems in two dimensions.
- Construct equilibrium equations for determining reactions in plane frames.
- Determine the internal forces in simple span trusses.
- Can apply knowledge to any problem and demonstrate the skills necessary to attend other relevant courses of the curriculum.

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

- Searching, analyzing, and synthesizing data and information, using the necessary technologies
- Adaptation to new situations
- Autonomous work
- Demonstration of social, professional, and ethical responsibility and sensitivity to gender issues

(3) COURSE CONTENT

The course will cover the following topics:

- STATIC SECTION: Introduction, Statics of Particles, Rigid Bodies: Equivalent Forces of Systems, Equilibrium of Rigid Bodies, Centroids and Centers of gravity, Analysis of Structures, Friction
- DYNAMICS SECTION: Newton's 2nd Law, Dynamic Equilibrium, Momentum Methods in System of Particles, Power Efficiency, Rate of Work, Energy (Kinetic, Potential, Deformation from Impact / Spring Force), Conservation of Energy

The course is also accompanied by tutorial sessions, in order for students to deepen their understanding of the material, resolve any questions they may have, and practice applying theoretical knowledge through practical examples and exercises. 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 or a lab
- 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.
Laboratory: open-access software for laboratory exercises
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
Tutorial exercises	13
Self-study of tutorial exercises	23
Self-study of lecture material	47
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 grade of the course is determined 100% by the written exams during the spring semester examination period and, in case of failure, during the September resit examination period.

The written exam includes problem-solving exercises and is conducted closed-book.

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:

- Beer, F.P., Johnston, R.E., Mazurek, F.D. (2017). Statics, 11th Edition, Tziolas Publications, ISBN: 9789604187393 [59421317] – in Greek
- Meriam, J.L., Kraige, L.G., (2013). Engineering Mechanics, Fountas Publications, ISBN: 9789603307440 [33074320] – in Greek
- Vithounis, P. (2020). Statics, Vithouni Publications, ISBN: 9786188328051 [94644084] – in Greek

- Journals:

- Other educational material:

- Lecture Notes and Supporting Material provided by the Instructor