COURSE OUTLINE

1. GENERAL INFORMATION

SCHOOL	MARITIME AND INDUSTRIAL STUDIES		
DEPARTMENT	INDUSTRIAL MANAGEMENT AND TECHNOLOGY		
LEVEL OF STUDY	UNDERGRADUATE		
COURSE UNIT CODE	TEHMX03-1	**SEMESTER OF STUDY**	2nd
COURSE TITLE	INTRODUCTION TO ENGINEERING MECHANICS		

INDEPENDENT TEACHING ACTIVITIES *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*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures and Excersices	5	5.5
Add rows if necessary. The organization of teaching and the teaching methods used are described in detail at section 4.		

COURSE TYPE *general background, special background, specialized general knowledge, skills development*	General 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/BDT190/

2. LEARNING OUTCOMES

LEARNING OUTCOMES

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:

APPENDIX A

- *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*

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 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
- Independent work
- Social, professional and ethical responsibility and sensitivity to gender issues

2. 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

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

3. TEACHING METHODS - ASSESSMENT

TEACHING MODE *Face-to-face, in-class lecturing, on distance teaching and distance learning etc.*	In-class lecturing and excersices
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY *Use of ICT in Teaching, Laboratory Education, Communication with students*	**Teaching:** Lectures and excersices 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 *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.* *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*	

Activity / Method	*Semester Workload*
Lectures	52
Exercises	25
Self-study of exercises	23
Self-study of lecture material	35
Counselling	0.5
Exams (written)	2
Course Total	***137.5***

STUDENT PERFORMANCE EVALUATION/ASSESSMENT METHODS	**Language of exams:** Greek / English (in ERASMUS class)

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* *Evaluation criteria are specifically defined and given as well as if and where they are reported and accessible to students.*	**Assessment Methods:** After the last lecture, the exam material is posted at eclass. The final course grade is formed by the written exams (100%) taken in the examination period of the spring semester and, in case of failure, in the September resits. The written examination includes problem solving / exercises. It is conducted with closed books. 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. **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.

4. SUGGESTED BIBLIOGRAPHY

-Suggested Bibliography :

- Book [59421317]: Statics, 11th Edition [in Greek], Beer F.P., Johnston R.E., Mazurek F. D.
- Book [33074320]: Engineering Mechanics [in Greek], M. Kraige

-Scientific Journals: not applicable

-Lecture Notes