COURSE OUTLINE

(1) GENERAL

SCHOOL	ENGINEERING SCHOOL		
DEPARTMENT	DEPARTMENT OF CIVIL ENGINEERING		
LEVEL OF STUDIES	UNDER GRADUATE		
COURSE CODE	2302506	SEMESTER	2nd
COURSE TITLE	MECHANICS I		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	WEEKLY TEACHING HOURS	CREDITS
Lectures	4	8 (total)
Laboratory	2	
	6 (total)	
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Specialized Knowledge, skills development
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek (official)- English (for the Erasmus Students)
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	http://vplace.teipir.gr/2302506

(2) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

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

1. Deeply understand the theory of Structural Mechanics.
2. Study and suggest solutions in problems of Structural Mechanics.
3. Develop personal responsibility and offer scientific opinion.
4. Manage time in an appropriate manner.
5. Develop analytical and synthetic abilities as well as critical evaluation.
6. Present ideas verbally or in written.

Specifically, students will be able to:

1. Understand and utilize the basic principles of Mechanics.
2. Evaluate the centroid of gravity and moments of area of plane shapes.
3. Apply equilibrium equations in structures.
4. Evaluate the redundancy of bar structures.
5. Analyze simple isostatic structures (cantilevers, simply supported beams, continuous beams with internal hinges).
6. Construct axial force, shear force, and bending moment diagrams.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking
……
Others…
…….

Search for, analysis and synthesis of data and information, with the use of the necessary technology,
Adapting to new situations ,
Working independently,
Project planning and management,
Production of free, creative and inductive thinking.

(3) SYLLABUS

1. Basic concepts of Mechanics. Force. Moment.
2. Systems of solid bodies.
3. Force composition and static equilibrium in two and three dimensions.
4. Centroid of gravity of solid bodies and plane shapes.
5. First and second moment of area. Moment of resistance.
6. Friction.
7. Introduction to Statics.
8. Types of structures, supports, internal and external forces.
9. Statically determinate and statically indeterminate structures.

10. Analysis of cantilevers.
11. Analysis of simply supported beams and frames.
12. Diagrams of internal forces.

(1) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Lectures, laboratories , distance learning methods
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Teaching using ICT, Laboratory Education using ICT, Communication and Electronic Submission
TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.* *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	
STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	Written examination: 60% Laboratory 40% of the total mark The evaluation of the laboratory is done by weekly assignments (30% of the laboratory mark) and by written exams (70% of the laboratory mark)

Activity	*Semester workload*
Lectures	52
Laboratories	26
study	122
Course total	*200*

(2) ATTACHED BIBLIOGRAPHY

1. Arapostathis N, Arapostathis D. Mechanics 1. Ion, 2003.(IN GREEK)
2. Fountas. Structural Mechanics 1. Fountas, 2000.(IN GREEK)