

COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Engineering		
ACADEMIC UNIT	Department of Naval Architecture		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	NAOME1103	SEMESTER	1 st
COURSE TITLE	MECHANICS I		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS (ECTS)
Lectures		4	5
COURSE TYPE <i>general background, specialbackground, specialised general knowledge, skills development</i>	General Background		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSEWEBSITE (URL)	https://eclass.uniwa.gr/courses/NA261/		

(2) COURSE GOALS / LEARNING OUTCOMES

<p>After successful attendance of the course students shall be familiar with:</p> <ul style="list-style-type: none"> • The application of equilibrium equations for the calculation of reaction forces of structures. • The evaluation of internal axial forces, shear forces and bending moments diagrams in beams and frames. • The evaluation of axial forces in trusses. • The calculation of centroids, moments of inertia and principal axes of inertia of planar areas.
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(3) COURSE CONTENT / SYLLABUS

- Introduction.
- Kind of loads and types of structures.
- Centers of gravity and centroids of areas and volumes.
- Rigid bodies: Forces, Moments, moment of a force about an axis, equivalent systems of forces.
- Beams and Frames: Calculation of reaction forces, axial forces, shear forces and bending moments (N,Q,M) diagrams.
- Trusses: Calculation of axial forces, method of nodes equilibrium, method of Ritter sections.
- Friction: Static and kinetic friction.
- Analysis of complex structures and eD structures.
- Moment of inertia, polar inertia, Steiner's theorem, transformation relations, principal axes.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY Face-to-face, Distance learning, etc.	Face-to-face	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY Use of ICT in teaching, laboratory education, communication with students	Homework assignments, Lectures	
TEACHING METHODS <i>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</i>	Activity	Workload (hours)
	Lectures	52
	Study of Lectures	91
	Course total	143
STUDENT PERFORMANCE EVALUATION <i>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</i>	Final written examination : 100%	

ATTACHED BIBLIOGRAPHY

1. P. Vouthounis, «Mechanics of Rigid Bodies», 1998 (In Greek)
2. Gross, D., Hauger, W et al., “Engineering Mechanics 1 – Statics”, Springer 2009.
3. Dirk Pons, “Structural mechanics”, 2010.

- Related Journals:

1. Journal of Mechanics, Cambridge University Press.
2. European Journal of Mechanics, Elsevier.
3. Journal of Applied Mechanics, ASME.