COURSE OUTLINE

1. GENERAL

SCHOOL	ENGINEERING
DEPARTMENT	PRODUCT AND SYSTEMS DESIGN ENGINEERING
LEVEL OF STUDIES	UNDERGRADUATE
COURSE CODE	3001 **SEMESTER** 5st
COURSE TITLE	**Engineering Mechanics**

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	**3**	**6**
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*	Special Background
PREREQUISITE COURSES:	NONE
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK/ENGLISH
COURSE DELIVERED TO ERASMUS STUDENTS	YES
MODULE WEB PAGE (URL)	https://eclass.uowm.gr/

2. LEARNING OUTCOMES

Learning outcomes
On successful completion of this module the learner will be able to: 1. understand the basic concepts of equilibrium and strength 2. solve engineering problems using fundamental principles 3. evaluate optimum dimensions of a simple structure 4. understand the experimental evaluation of the mechanical behavior of materials

General Skills
Upon successful completion of the program students will: • have the theoretical and practical background on the field of product and systems design engineering and the corresponding profession. • utilize scientific knowledge to understand, analyze and solve problems. • apply a wide range of scientific and technical knowledge concerning the design and development of products and systems.

3. COURSE CONTENTS

Basic concepts of Statics, two-dimensional force and moment, resultants, force-couple systems, three-dimensional force and moment, equilibrium in 2 and 3 dimensions, free-body diagram, plane trusses, space trusses, frames and machines, centers of mass, moments of inertia, beams-shear force and bending moment diagrams, friction, normal and shear stress, allowable stress, normal and shear deformation, stress-strain diagram, brittle and ductile materials, strain energy, stress and strain components, Hooke's law, Axial stress, bending, shearing, combined loading and design, stress and strain transformations, principle stresses.

4. TEACHING METHODS - ASSESSMENT

MODE OFDELIVERY	In class, face to face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	• Video and slide presentations via projector • Support of teaching process via the electronic platform e-class • Communication with students.

TEACHING METHODS	Activity	Semester workload
	Lectures	90
	Non-directed study	60
	Course total	**150**

ASSESSMENT METHODS	Final written exam which includes: **i.** Short-answer questions **ii.** Multiple choice questions **iii.** Problem solving

5. ATTACHED

- Suggested bibliography:

- Στατική, 11η Εκδοση, Beer Ferdinand P., Johnston Russell E., Mazurek F. David
- Αντοχή Υλικών, 9η Έκδοση, Gere James, Goodno Barry, Τσερπές Κωνσταντίνος (επιμέλεια)
- Στατική και μηχανική των υλικών, Nash William A.

- Related academic journals: