COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Business		
ACADEMIC UNIT	Department of Financial and Management Engineering		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	MH0102	SEMESTER	2nd
COURSE TITLE	STATICS		

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 and lab	5	4,5
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*	Engineering background, specialised knowledge, skills development
PREREQUISITE COURSES:	-
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No
COURSE WEBSITE (URL)	http://www.fme.aegean.gr/en/c/statics

(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*

The course is addressed to undergraduate students and aims to allow students to:

- **Develop a high level of understanding of the fundamental principles of applied mechanics and the modeling of force systems in engineering statics.**
- **Demonstrate an integrated understanding of engineering statics principles through applications involving problem solving and through creation of design solutions to engineering scenarios.**
- **Work cooperatively with others to facilitate a collegial atmosphere conducive to learning for all students in the class.**
- **Prepare for and attend each class by reading the assigned sections before class, completing homework before class, and actively participating in class.**

Upon successful completion of this course, the students will be capable of

performing the following tasks:

- **Prepare appropriate free body diagrams.**
- **Solve 2-D and 3-D particle and rigid body equilibrium problems.**
- **Solve problems involving moments.**
- **Solve problems involving friction.**
- **Calculate shear and bending moment diagrams in beams.**

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
- Respect for the natural environment
- Adapting to new situations
- Decision-making
- Working independently
- Team work
- Production of free, creative and inductive thinking
- Criticism and self-criticism

(3) SYLLABUS

1. Basic principles of statics
2. Force and moment in two dimensions (2D)
3. Resultant force and moment in plane, couple of forces
4. Force and moment in three dimensions (3D)
5. Space resultant force and moment
6. Equilibrium (balance) in 2 and 3 dimensions, construction of free-body diagram
7. Trusses
8. Centroids, moment of inertia
9. Beams, external forces
10. Beams, internal forces, construction of N, Q, M diagrams
11. Frames, machines
12. Cables
13. Friction

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face to face teaching and lab
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Use of eClass in delivering notes and presentations
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.*	Grading will be determined on three exams: two mid-term exams covering the first 60 % of the topics of the course (30 % each) while the final exam covers the rest 40 % of the topics. The students that fail the course will be re-examined in September at the whole topic of the course (100 %). The course grade will be calculated as follows: (1st Mid-term exam x 30 %) + (2nd Mid-term exam x 30 %) + (Final exam 40 %) = (Total 100 %) Exam in September covers the whole topic of the course 100 %

Activity	*Semester workload*
Lectures	39
Lab	26
Bibliography study	80
Formulation of laboratory topics	40
Tests	20
Course total	***205***

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography: Vector Mechanics for Engineers: Statics by Ferdinand Beer, E. Russell Johnston Jr., Elliot Eisenberg and David Mazurek

- Related literature:

- *Engineering Mechanics – Statics (12th edition) by R.C. Hibbeler*
- *Engineering Mechanics - Statics by J. L. Meriam and L. G. Kraige*
- *Engineering statics by A. S. Hall*
- *Statics by Arthur Stanley Ramsey*