1.1.1   Structural Analysis I – Determinate structures

GENERAL

SCHOOL	Engineering		
ACADEMIC UNIT	CIVIL ENGINEERING		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	ΔΟΜ012	**SEMESTER**	4th
COURSE TITLE	Structural Analysis I – Determinate structures		

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**
	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*	Scientific Field	
PREREQUISITE COURSES:		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek	
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No	
COURSE WEBSITE (URL)	http://elearning.teicm.gr/course/view.php?id=504	

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*
Understand equilibrium and the behavior of determinate structures. Analyze statically determinate structures, such as Beams, Frames, Trusses, Mixed Structures, Continuous Frames and strengthened Structures subject to various permanent loadings. Draw bending, shear and axial force diagrams of determinate structures. Understand and apply the principle of virtual work.

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

-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 interdisciplinary environment
-Project planning and management
-Criticism and self-criticism
-Production of free, creative and inductive thinking

SYLLABUS

2D structures. Internal forces, fundamental and composite structural systems. Simply supported Beams and Frames. Three-hinged arches. Trusses and suspended systems. Influence lines. Extreme values – Envelopes. Energy principles. Calculation of displacements. 3D structures.

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*	Communication via e-mail and Zoom platform. Additional material is provided via a dedicated e-learning website.	
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*	*Activity*	*Semester workload*
	Lectures	40
	Practice/exercises	12
	Individual study	78
	Course total (26 hours workload per ECTS credit)	*130*
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.*	Formative evaluation consisted of: 1.Non-compulsory intermediate tests (2 to 3 in total) focused on solving problems (30% of final mark) 2. Final written exams that includes: a. Theoretical questions of knowledge and critical thinking and b .Solving of problems-exercises (70% of final mark)	

ATTACHED BIBLIOGRAPHY

Ghaliand, A. and Neville, A.M.(1989), Structural Analysis, a unified classical and and Matrix Approach, Chapman and Hall publication.
Valiasis Th. (1997), Statics of Linear Structures, Thessaloniki: Ziti publication (in Greek).

W.Wagner and G. Erlhog (2012), Applied Statics, ΚΛΕΙΔΑΡΙΘΜΟΣ publication (Greek translation from German).