COURSE OUTLINE

(1) GENERAL

SCHOOL	ENGINEERING SCHOOL		
DEPARTMENT	CIVIL ENGINEERING DEPARTMENT		
LEVEL OF STUDIES	UNDER GRADUATE		
COURSE CODE	2304517	SEMESTER	4th
COURSE TITLE	Statics 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
Exercises	3	
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-course, skills development
PREREQUISITE COURSES:	YES (Mechanics I)
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek (official)
IS THE COURSE OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBSITE (URL)	http://civil.teipir.gr/web/index.php?page=alias-43

(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. Have acquired in-depth knowledge and critical understanding of the theory and principles of Statics, in order, with use of new technologies and information systems, can design Statically determinate structures with various geometry.
2. Perceive, analyze and solve Statically determinate structures (Beams, Frames, Trusses) with or without truss.
3. To analyze and evaluate and draw diagrams of internal forces (N, Q, M) in Statically determinate structures subject to moving loadings.

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…*
	…….

Specifically, students will be able to:

1. Searching, analysis and synthesis of data and information, using the necessary technologies: Study of needs for design various structures subject to various loadings.
2. Decision Making: Description and perception of parts constituting a statically determinate structure.
3. Autonomous work: To apply principles of Mechanics, equilibrium equations and free body diagram in order to evaluate reaction forces and internal forces (N, Q, M) of structure.
4. Team work: To have the ability to distinguish and solve a structure with moving loadings and compare it with same structure subject to stationary loadings.

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(3) Course Content

Theory

The core modules of the course include:

1. Principles of Statics. Free Body Diagram (F.B.D.).
2. Solution and drawing of Internal forces Diagrams (N), (Q) and (M) for simple statically determinate structures
3. Modelling and solution of rigid three-pinned arch.
4. Modelling and solution of trussed or composed three-pinned arch.
5. Modelling and solution of Gerber – beam and drawing of internal forces diagram.
6. Modelling and solution of Gerber – frame and drawing of internal forces diagram.
7. Modelling and solution of indirect loaded structures.
8. Modelling and solution of strengthened beams with system of pinned bars.
9. Modelling and solution of strengthened frames with system of pinned bars.
10. Modelling and solution of hanged structures and bridges.
11. Definition of Influence Lines for a mobile Unit loading.
12. Drawing of Influence Lines for a cantilever beam, a simply supported beam and a frame with evaluation of minimum or maximum value of internal forces (N,Q,M).
13. Drawing of Influence Lines for a truss beam with evaluation of minimum or maximum value of reaction forces and axial forces.

(4) TEACHING and LEARNING METHODS - EVALUATION

<table>
<tr><td>DELIVERY
Face-to-face, Distance learning, etc.</td><td>Lectures and exercises, face-to-face</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
Use of ICT in teaching, laboratory education, communication with students</td><td>Teaching using ICT, exercises Education using ICT, Communication and Electronic Submission</td></tr>
<tr><td>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</td><td><table><tr><th>Activity</th><th>Semester workload</th></tr><tr><td>Lectures</td><td>52</td></tr><tr><td>Exercises</td><td>39</td></tr><tr><td>Personal study</td><td>109</td></tr><tr><td>Course total</td><td>200</td></tr></table></td></tr>
<tr><td>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</td><td>Theory:
Final written examination: 80%, which includes:
-Solution of statically determinate structures
Exercises examination: 20%, which includes:
-Solution of statically determinate structures</td></tr>
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Specifically-defined evaluation criteria are given, and if and where they are accessible to students.	

(5) ATTACHED BIBLIOGRAPHY

1. Valiasis Th. (1997), Statics of Linearly Elastic Frames, Thessaloniki: Ziti Publications (in Greek).
2. Nitsiotas G. (1995), Statics of Linearly Elastic Frames (Classic Statics), Thessaloniki: Ziti Publications (in Greek).
3. Teaching Notes and Exercises by C. Demakos (n Greek).