COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF ENGINEERING		
DEPARTMENT	DEPARTMENT OF CIVIL ENGINEERING		
LEVEL OF STUDIES	UNDER GRADUATE		
COURSE CODE	2307574	SEMESTER	7th
COURSE TITLE	COMPOSITE 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
Lectures	2	5
Laboratory	2	
	4	
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, skills development
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek (official)- English (in Erasmus courses)
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	http://vplace.teipir.gr/2307574

(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. Deeply understand the theory and principles of Composite Structures consisting of reinforced concrete and structural steel.
2. Study and suggest solutions in problems of Composite Structures.
3. Develop personal responsibility and offer scientific opinion
4. Manage time in an appropriate manner.
5. Develop analytical and synthetic abilities as well as critical evaluation.
6. Present ideas verbally or in written.
7. Analyze problems taking into account the lack or surplus of data.
8. Critically evaluate data and use it for the solution of problems.
9. Think originally, creatively and solve problems based on their experience and the use of modern methods and Codes.

Specifically, the students will be able to:

1. Create load combinations in the Ultimate Limit State (ULS) and Serviceability Limit State (SLS) using influence lines.
2. Analyze and design composite beams, columns and slabs using elastic and plastic theory.
3. Analyze and design sections against shear, taking into account the interaction between shear and normal forces.
4. Analyze and design shear connectors.

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, analysis and synthesis of data and information,
Decision making,
Working independently,
Project planning and management,

(3) COURSE CONTENT

1. Introduction.
2. Materials.
3. Principles of design using composite structures.
4. Loads and load combinations. Partial safety factors. Combination factors. Limit states.
5. Influence lines.
6. Methods of analysis and section classification.
7. Composite beams – elastic analysis.
8. Composite beams – plastic analysis.
9. Shear resistance.
10. Interaction between shear and normal forces.
11. Composite columns. Buckling.
12. Shear connectors – elastic design, plastic design.
13. Composite slabs.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face to face, Distance learning
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Teaching using ICT, Laboratory Education using ICT, Communication and Electronic Submission
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.*	Written examination: 100% Optional semester assignment, which accounts for 20% of the overall grade with the written examination covering the remaining 80%. Applicable only when the written examination is successful.

Activity	*Semester workload*
Lectures	26
Laboratory	26
Study	73
Course total	125

(5) ATTACHED BIBLIOGRAPHY

1) Vayas, I. Composite structures of steel and reinforced concrete. Kleidarithmos, 3rd edition, 2010 (in Greek).
2) European Composite Structures, BODE, 1998, Giourdas (in Greek).