

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF MINERAL RESOURCES ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	MRE204	SEMESTER	2
COURSE TITLE	Mechanics – Structures (TECHNICAL MECHANICS)		
INDEPENDENT TEACHING ACTIVITIES <i>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</i>		WEEKLY TEACHING HOURS	CREDITS
Theory - lectures		2	5
Exercises		2	
Total (hours)		4	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	general background		
PREREQUISITE COURSES:	-		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBSITE (URL)	https://eclass.uowm.gr/courses/MRE211/		

(2) LEARNING OUTCOMES

<p>Learning outcomes</p> <p><i>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.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i> 		
<p>The course is the basic introductory course in the concepts of statics.</p> <p>The course material aims to introduce students to the basic concepts of engineering.</p> <p>The aim of the course is to understand the introductory concepts of the theory of undeformed bodies in Engineering.</p> <p>Upon successful completion of the course, the student should have sufficient knowledge of the basic principles of the science of Statics through the presentation of the main concepts – definitions, as well as skills in basic principles of undeformed bodies, mechanics and statics.</p>		
<p>General Competences</p> <p><i>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?</i></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i> <i>Adapting to new situations</i> <i>Decision-making</i> <i>Working independently</i> <i>Team work</i> <i>Working in an international environment</i> <i>Working in an interdisciplinary environment</i> </td> <td style="width: 50%; border: none;"> <i>Project planning and management</i> <i>Respect for difference and multiculturalism</i> <i>Respect for the natural environment</i> <i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i> <i>Criticism and self-criticism</i> <i>Production of free, creative and inductive thinking</i> <i>.....</i> </td> </tr> </table>	<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i> <i>Adapting to new situations</i> <i>Decision-making</i> <i>Working independently</i> <i>Team work</i> <i>Working in an international environment</i> <i>Working in an interdisciplinary environment</i>	<i>Project planning and management</i> <i>Respect for difference and multiculturalism</i> <i>Respect for the natural environment</i> <i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i> <i>Criticism and self-criticism</i> <i>Production of free, creative and inductive thinking</i> <i>.....</i>
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<i>Production of new research ideas</i>	<i>Others...</i>
<i>Search for, analysis and synthesis of data and information</i> <i>Working independently</i> <i>Team work</i>	

(3) SYLLABUS

The subject of the course is the introduction to the Mechanics of undeformed bodies and the statics presenting examples related to the science of mineral resources engineering. Reference is made to the mechanics of undeformable bodies and the dynamics of structures.

Physical quantities such as force, torque, moment, work, energy, friction, etc. are described. Issues such as balance, stability, mobility, solid connections and the beginning of possible projects are developed. Finally, simple isostatic constructions at the level and space are analyzed.

Beams, frames and arches, cable carriers and grids are especially examined.

The course consists of the following sections:

- BALANCE CONDITIONS
- POWER BALANCE, MOMENTS
- WEIGHT CENTERS OF COMPOSITE SURFACES AND VOLUMES
- FREE BODY DIAGRAM
- STATIC SYSTEMS
- DIAGRAMS N, Q, M
- CHARGING COMBINATIONS

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	<i>Face-to-face, Distance learning</i>	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	<ul style="list-style-type: none"> • Projector/pc presenting all lectures, • COURSE RELATED NOTES AND ALSO UNSOLVED EXERCISES DATABASE SITED AT THE COURSE' e-class WEBSITE 	
TEACHING METHODS <i>The manner and methods of teaching are described in detail.</i> <i>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.</i> <i>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</i>	Activity	Semester workload
	lectures	13
	Exercises	26
	Group work	-
	Educational visit to industries	-
	Atomic avocation	OPTIONAL ATOMIC WORK (SEVERAL UNSOLVED INCREASED DIFFICULTY EXERCISES) FOR ALL STUDENTS
	Personal study	13
	Total (ects credits * 25)	125
Course total	125	
STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i> <i>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</i> <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	<p>Students at the exams only have to solve increased difficulty exercises.</p> <p>Optional work 10% is taken into account and the students are finally graded.</p> <p>THE FINAL GRADE OF EACH STUDENT, COMES OUT FROM THE SUMMARY OF:</p> <ul style="list-style-type: none"> • THE EXAMINATION GRADE AND • THE OPTIONAL WORK 	

(5) SUGGESTED BIBLIOGRAPHY

<p>- Suggested bibliography:</p> <ul style="list-style-type: none"> • Book [94644084]: STATICS, VOUTHOUNIS PANAGIOTIS • Book [45304]: Technical Engineering I, Statics, Marketos Evangelos • Book [1753]: TECHNICAL ENGINEERING PRINCIPLES OF STATICS & INTRODUCTION TO THEORY OF DEFORMABLE BODIES, MATSIKOUDI - ILIOPOULOU MARIA <p>- Related academic journals:</p>
