

COURSE OUTLINE

1. GENERAL INFORMATION

SCHOOL	MARITIME AND INDUSTRIAL STUDIES		
DEPARTMENT	INDUSTRIAL MANAGEMENT AND TECHNOLOGY		
LEVEL OF STUDY	UNDERGRADUATE		
COURSE UNIT CODE	TEMA007	SEMESTER OF STUDY	2 nd
COURSE TITLE	MATHEMATICS II		
INDEPENDENT TEACHING ACTIVITIES <i>in case in which credits are awarded for separate components/parts of the course, e.g. in lectures, laboratory exercises, etc. If credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>		WEEKLY TEACHING HOURS	CREDITS
Lectures		4	5.5
<i>Add rows if necessary. The organization of teaching and the teaching methods used are described in detail at section 4.</i>			
COURSE TYPE <i>general background, special background, specialized general knowledge, skills development</i>	General background		
PREREQUISITE COURSES:	None		
LANGUAGE OF INSTRUCTION and EXAMINATION/ASSESSMENT:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)	https://eclass.unipi.gr/courses/BDT161/		

2. LEARNING OUTCOMES

<p>LEARNING OUTCOMES</p> <p><i>The course learning outcomes, specific knowledge, skills and competences of an appropriate (certain) level, which students will acquire upon successful completion of the course, are described in detail. It is necessary to consult:</i></p> <p>APPENDIX A</p> <ul style="list-style-type: none"> • <i>Description of the level of learning outcomes for each qualifications' cycle, according to the European Higher Education Area's Qualification Framework.</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 essentially a continuation of Mathematics I (1st semester) aiming at familiarizing students with the basic concepts of mathematics used in the other courses of the curriculum.</p> <p>Upon successful completion of the course, the students will be able to:</p> <ul style="list-style-type: none"> • Solve first-order differential equations • Study applications of differential equations in engineering, thermodynamics, kinetics, etc., relevant to the other subjects of the curriculum • Estimate the independent solutions of a differential equation • Solve higher order differential equations as well as systems of differential equations • Use the Lagrange multiplier method to optimize function under constraints • Demonstrate the skills necessary to attend other courses of the curriculum with a computing part • Formulate and solve computer problems by using the mathematical tools taught in the course

General Competences

Taking into consideration the general competences that students/graduates must acquire (as those are described in the Diploma Supplement and are mentioned below), at which of the following does the course attendance aims

Search for, analysis and synthesis of data and information, by the use of technologies that are necessary according the case

Adapting to new situations

Decision-making

Independent work

Team work

Working in an international environment

Working in an interdisciplinary environment

Introduction of innovative research

Project planning and management

Respect for difference and multiculturalism

Environmental awareness

Social, professional and ethical responsibility and sensitivity to gender issues

Critical consciousness, criticism and self-criticism

Development of free, creative and inductive thinking

- Search for, analysis and synthesis of data and information, by the use of technologies that are necessary according the case
- Independent work
- Working in an interdisciplinary environment
- Social, professional and ethical responsibility and sensitivity to gender issues

2. COURSE CONTENT

The course will cover the following topics:

- Multivariable calculus: Limits, Continuity, Partial differentiation, Optimization, Optimization under constrictions (Lagrange multipliers), Multiple integration (double-triple)
- Generalized integration of univariate functions
- Linear dispersion equations and Linear differential equations

In addition, articles, audiovisual lecture material, web addresses, useful information, exercises and software are posted at eclass.

3. TEACHING METHODS - ASSESSMENT

<p>TEACHING MODE <i>Face-to-face, in-class lecturing, on distance teaching and distance learning etc.</i></p>	In-class lecturing	
<p>USE OF INFORMATION AND COMMUNICATION TECHNOLOGY <i>Use of ICT in Teaching, Laboratory Education, Communication with students</i></p>	<p>Teaching: Lectures with audiovisual media, support of the learning process through the eclass platform</p> <p>Communication with students: face-to-face at office hours, email, eclass</p>	
<p>COURSE DESIGN <i>Description of teaching techniques, practices and methods: Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, clinical practice, Art Workshop, Interactive teaching, Educational visits, project, Essay writing, Artistic creativity, etc.</i></p> <p><i>The study hours for each learning activity as well as the hours of non- directed study are given according to the principles of the ECTS</i></p>	<p>Activity / Method</p>	<p>Semester Workload</p>
	Lectures	52
	Self-study of exercises	26
	Self-study of lecture material	57
	Counselling	0.5
	Exams (written)	2
	Course Total	137.5
<p>STUDENT PERFORMANCE EVALUATION/ASSESSMENT METHODS <i>Detailed description of the evaluation procedures:</i></p>	<p>Language of exams: Greek</p> <p>Assessment Methods: After the last lecture, the exam material is posted at eclass. The final course grade is formed</p>	

<p><i>Language of evaluation, assessment methods, formative or summative (conclusive), multiple choice questionnaires, short- answer questions, open-ended questions, problem solving, written work, Essay/report, oral exam, public presentation, laboratory work, art interpretation, other.....etc</i></p> <p><i>Evaluation criteria are specifically defined and given as well as if and where they are reported and accessible to students.</i></p>	<p>by the written exams (100%) taken in the examination period of the spring semester and, in case of failure, in the September resits.</p> <p>The written examination includes problem solving / exercises. It is conducted with closed books.</p> <p>The evaluation of students with special learning difficulties in writing and reading (as certified and qualified by a competent institution) is performed according to the relevant procedure decided by the Department Assembly.</p> <p>Notification of the Assessment Criteria: The evaluation criteria are made known during the first lecture and are clearly stated on the course website and e-class. The answers to the exam questions are posted at eclass after the exam date. Students have the opportunity to discuss their exam paper with the course instructor (at the posted office hours) after the announcement of the course grades.</p>
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4. SUGGESTED BIBLIOGRAPHY

-Suggested Bibliography :

- Book [68374997]: Analysis and Applications 2 [in Greek], A.G. Sapounakis, E.C. Fountas
- Book [68374991]: Analysis and Applications 1 [in Greek], A.G. Sapounakis, E.C. Fountas

-Scientific Journals: not applicable

-Lecture Notes