

COURSE OUTLINE

1. GENERAL

SCHOOL			
DEPARTMENT	DEPARTMENT OF PHYSICS UNDERGRADUATE STUDY PROGRAM: PHYSICS		
LEVEL OF STUDIES	ISCED level 6 – Bachelor's or equivalent level		
COURSE CODE	Y102-2023	SEMESTER	1st Semester
COURSE TITLE	Calculus I		
TEACHING ACTIVITIES If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.		TEACHING HOURS PER WEEK	ECTS CREDITS
		4	6.0
COURSE TYPE Background, General Knowledge, Scientific Area, Skill Development	Background		
PREREQUISITES	None		
TEACHING & EXAMINATION LANGUAGE:	Greek		
COURSE OFFERED TO ERASMUS STUDENTS:	NO		
COURSE URL:	https://eclass.emt.duth.gr/courses/PHYSICS168/		

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

The course covers the following general topics:

- Functions
- Limits
- Derivatives - Applications of derivatives
- Some derivatives - applications
- Integrals
- Integration techniques
- Multiple integrals (simple reference)
- Sequences – Series
- Taylor–Maclaurin series

and general applications of these to physics problems, in order for the student to build the required mathematical background for the next semesters of studies.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use, Adaptation to new situations,
Decision making,
Autonomous work,
Teamwork,
Working in an international environment,
Working in an interdisciplinary environment, Production of new research ideas

Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

Decision making
Autonomous work
Promoting free, creative and inductive reasoning

3. COURSE CONTENT

Functions
Limits
Derivatives - Applications of derivatives
Some derivatives - applications
Integrals
Integration techniques
Multiple integrals (simple reference)
Sequences – Series
Taylor–Maclaurin series

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD Face to face, Distance learning, etc.	Face to face												
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) Use of ICT in Teaching, in Laboratory Education, in Communication with students	Use of ICT in Teaching Use of ICT in Communication with students												
TEACHING ORGANIZATION The ways and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc. The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards	<table> <tr> <th>Activity</th><th>Workload/semester</th></tr> <tr> <td>Lectures</td><td>52</td></tr> <tr> <td>Writing project</td><td>30</td></tr> <tr> <td>Bibliographic research & analysis</td><td>70</td></tr> <tr> <td>Tutoring</td><td>26</td></tr> <tr> <td>Total</td><td>178</td></tr> </table>	Activity	Workload/semester	Lectures	52	Writing project	30	Bibliographic research & analysis	70	Tutoring	26	Total	178
Activity	Workload/semester												
Lectures	52												
Writing project	30												
Bibliographic research & analysis	70												
Tutoring	26												
Total	178												

STUDENT EVALUATION Description of the evaluation process Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others Please indicate all relevant information about the course assessment and how students are informed	Student evaluation languages Greek Method (Formative or Concluding) Formative Student evaluation methods Written Exam with Problem Solving Written Assignment Rate 60 40
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5. Suggested Bibliography

THOMAS ΑΠΕΙΡΟΣΤΙΚΟΣ ΛΟΓΙΣΜΟΣ, [George B. Thomas], Jr., Joel Hass, Christopher Heil, Maurice D. Weir
 Απειροστικός και Διανυσματικός Λογισμός, Adams R.A., Essex C.
 Ανώτερα Μαθηματικά, 3η Έκδοση, Wrede Robert C., Spiegel Murray R.
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 Ανώτερα Μαθηματικά, ΜΩΥΣΙΑΔΗΣ ΧΡΟΝΗΣ

Eudoxus

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