MODULE DESCRIPTION

General

School	Geotechnical Sciences
Department	Forest and Natural Environment Sciences

Module Information

Title	Mathematics
Course Code	A.Y.6
Level of Studies	Undergraduate Studies
Teaching Period	Winter
Attendance Type	Compulsory
Prerequisites	Not applied

Orientation	Weekly Hours		Year	Semester	ECTS
	Lectures	Laboratory work			
Landscape Architecture & Restoration	2	0	1	1	3

Faculty Instructor

Dr. Antonios N. Papadopoulos

Type of Module

- ☑ General Foundation
- ☐ Specific Foundation / Core
- ☐ Knowledge Deepening / Consolidation

Mode of Delivery

- ☑ Face to face
- ☐ Distance learning

Digital Module availability

- ☑ E-Study Guide
- ☑ Departments Website
- ☑ E-Learning

Language

	Teaching	Examination
Greek	☐	☐

English	☑	☑

Erasmus

☐ The course is not offered to exchange programme students

Learning Outcomes

To comprehend and consolidate the notion of a function, with which they dealt in some degree in the last years of Lyceum. To use the graphic representation for the recognition of behavior of functions and to learn how to draw the graphic representation of elementary functions. To recognize the sequences and series (numerical and power series) and to find, if exist, limits and infinite sums. To differentiate various forms of functions (explicit, implicit, parametric, bivariate) and apply the derivatives in the geometry and elsewhere. To integrate elementary and relatively complicated functions with one or two variables and express various quantities as areas, volumes, etc as integrals. Also, to solve some simple differential equations and find their general and partial solution.

List of General Competences

☑ Apply knowledge in practice

☑ Work autonomously

☑ Work in teams

☐ Work in an international context

☐ Work in an interdisciplinary team

☑ Respect natural environment

☐ Advance free, creative and causative thinking

Module Content (Syllabus)

Functions (algebraic, exponential, logarithmic, trigonometric, transcendental, implicit, parametric), Sequences (the notion of limit, convergence, criteria of convergence), Series (definition, convergence, criteria of convergence), Power Series, Derivative (Derivative Rules, logarithmic differentiation, derivative of implicit and parametric functions, power series, second and higher order derivative), Taylor Polynomial and Taylor series, Applications of derivatives (geometrical applications, Newton-Raphson method for finding the roots of an equation), Complete study of a function (extrema, curvature, asymptote, graphic representation), Integrals (integration of elementary functions, theorem of mean value, the Fundamental Theorem of Calculus), Area under or between curves, Geometric applications, Techniques of Integration (Substitution, Integration by Parts, integration of a rational function), Functions of many variables (domain and continuity, partial derivative, extrema, double integrals), Differential equations (Separable, homogenous, linear of first order)

Educational Material Types

☑ Book

- ☐ Notes
- ☑ Slide presentations
- ☐ Video lectures
- ☐ Multimedia
- ☐ Interactive exercises
- ☐ Other:

Use of Information and Communication Technologies

- ☑ Use of ICT in Course Teaching
- ☑ Use of ICT in Laboratory Teaching
- ☑ Use of ICT in Communication with Students
- ☑ Use of ICT in Student Assessment

Module Organization

Course Activity	Workload (hours)
Lectures	25
Laboratory work	25
Field Trip/Short Individual Assignments	15
Independent Study	10
Total	**75**

Student Assessment Methods

- ☑ Written Exam with Multiple Choice Questions
- ☑ Written Exam with Short Answer Questions
- ☑ Written Exam with Extended Answer Questions
- ☑ Written Assignment
- ☐ Report
- ☑ Oral Exams
- ☐ Laboratory Assignment

Suggested Bibliography (Eudoxus and additional bibliography)

1. Χρόνης Μωυσιάδης: ΑΝΩΤΕΡΑ ΜΑΘΗΜΑΤΙΚΑ, Κωδικός Βιβλίου στον Εύδοξο: 8855