University of Nicosia, Cyprus

Course Code	**Course Title**	**ECTS Credits**
MATH-110	Mathematics Laboratory	2
Department	**Semester**	**Prerequisites**
Mathematics	Fall	N/A
Type of Course	**Field**	**Language of Instruction**
Required	Mathematics	English
Level of Course	**Year of Study**	**Lecturer(s)**
1st Cycle	1st	Dr. N. Papanicolaou
Mode of Delivery	**Work Placement**	**Co-requisites**
Face-to-face	N/A	N/A

Objectives of the Course:

The main objectives of the course are to:

- Discuss problem-solving techniques for advanced problems
- Familiarize students with the formal definitions of limits and continuity
- Discuss the definition of the derivative in detail
- Familiarize students with the definition of the integral and demonstrate it as an area problem
- Discuss the limit of the sigma notation of the area
- Cover applied problems involving maxima and minimua

Learning Outcomes:

After completing the course students are expected to be able to:

- Apply the problem-solving techniques discussed to solve theoretical problems.
- Prove the basic properties of limits using the rigorous definition.
- Use Riemann sums to compute simple definite integrals
- Solve problems with maxima and minima

Course Contents:

1. Limits and Continuity
2. The Derivative
3. The area problem, Riemman Sums and the Definite Integral
4. Problems with maxima and minima
5. Hyperbolic Functions

Learning Activities and Teaching Methods:

Lectures and Assignments

Assessment Methods:

1 Mid-Term Exam; Assignments, Final Exam.

Required Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Howard Anton, Irl Bivens, Stephen Davis	Calculus: Late Transcendentals, Combined *9th Edition*	Wiley	2009	0470183497

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
James Stewart	Calculus	Thomson/ Brooks/Cole	2007	9780495011668