UNIVERSITY of NICOSIA

Course Syllabus

Course Code	Course Title	ECTS Credits
MATH-195	Calculus I	6
Prerequisites	**Department**	**Semester**
MATH-180 or MPT	Computer Science	Fall, Spring
Type of Course	**Field**	**Language of Instruction**
Required	Mathematics	English/Greek
Level of Course	**Lecturer(s)**	**Year of Study**
1st Cycle	George Portides	1st
Mode of Delivery	**Work Placement**	**Corequisites**
Face to face	n/a	None

Course Objectives:

The main objectives of the course are to:

- Introduce the concepts of limits and continuity.
- Define the derivative and apply differentiation techniques on algebraic and trigonometric functions.
- Define the Intermediate Value theorem, the Mean Value theorem and Rolle's theorem.
- Analyze functions for graphing purposes.
- Introduce the concept of antiderivative and apply basic techniques for the evaluation of indefinite and definite integrals.
- Define logarithmic and exponential functions and use differentiation and integration techniques on them.

Learning Outcomes:

After completion of the course students are expected to be able to:

- Compute limits.
- Determine points of discontinuity and intervals of continuity for functions.
- Use standard differentiation techniques for finding derivatives and tangent lines.
- Use the derivative to analyze functions and sketch graph.
- Apply Rolle's theorem and the mean value theorem.
- Find definite and indefinite integrals using basic integration techniques.

- Differentiate and integrate exponential functions and functions involving logarithms, and employ the logarithmic differentiation technique when appropriate.

Course Content:

- Limits, asymptotes and continuity of functions.
- The derivative function, basic techniques of differentiation, derivatives of trigonometric functions, the chain rule, Implicit differentiation.
- Analysis of functions for sketching graphs.
- Applications of the Rolle's theorem and the Mean Value theorem and an overview of the area problem.
- The antiderivative, basic techniques for finding Indefinite and Define integrals.
- Derivatives and integrals of exponential functions and functions involving logarithms, logarithmic differentiation.

Learning Activities and Teaching Methods:

Lectures, Exercises and Tests

Assessment Methods:

One test and one Final Exam

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Calculus: Late Transcendentals, 10th edition	Anton H., Bivens I., Davis S.	Wiley	2012	978-1118092484
APEX Calculus I, 3rd edition	Hartman G.	CreateSpace Independent Publishing Platform	2015	978-1514225158

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Calculus (International Metric Edition), 6th edition	Stewart J.	Brooks/Cole	2008	978-0495383628