



Course Syllabus

Course Code	Course Title	ECTS Credits
MATH-196	Calculus II	6
Prerequisites	Department	Semester
MATH 195	Computer Science	FALL/SPRING
Type of Course	Field	Language of Instruction
Required	Mathematics	English
Level of Course	Lecturer(s)	Year of Study
1 st Cycle	Dr. Marios A. Christou	1 nd
Mode of Delivery	Work Placement	Corequisites
Face-to-face	NA	None

Course Objectives:

The main objectives of the course are to:

- Introduce the use of L'Hospital's Rule in the evaluation of limits.
- Introduce Provide students with all the necessary techniques for advancing in integration and differentiation.
- Provide students with the fundamentals of sequences and infinite series.
- Introduce students in the applications of integration and differentiation.

Learning Outcomes:

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

1. Evaluate limits using L'Hopital's Rule.
2. Calculate the derivatives and integrals of inverse trigonometric functions.
3. Use various integration methods. Evaluate proper and improper integrals.
4. Make use of the sequences and the infinite series.
5. Be able to decide if a series converges or diverges.
6. Use Maclaurin and Taylor Approximations.
7. Be able to evaluate volumes using integration.

Course Content:

1. Chapter 1
 - a. L'Hopital's Rule, indeterminate forms.
 - b. Derivatives and integrals involving inverse trigonometric functions.
2. Chapter 2: Principles of Integral Evaluation
 - a. An overview of integration methods
 - b. Integration by parts
 - c. Integrating trigonometric functions
 - d. Trigonometric substitutions
 - e. Integration using partial fractions.
 - f. Improper integrals.
3. Chapter 3: Infinite Series
 - a. Sequences
 - b. Monotone sequences.
 - c. Infinite series and convergence tests.
 - d. Maclaurin and Taylor approximations.
 - e. Power series
4. Applications of the definite integral
 - a. Area between two curves.
 - b. Volumes using integration.

Learning Activities and Teaching Methods:

Lectures, Handouts, Assignments and In-class Exercises

Assessment Methods:

Final Examination, Midterm Examinations, Assignments and Participation.

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Calculus	Anton, Bivens, and Davis	Wiley (10 th Ed.)	2013	978-111809248-4

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Calculus	James Stewart	Thomson/Brooks/Cole	2013	978-1285740621