Calculus II
Course MATH102

Course Outline:

1. Sequences and series, power series, convergence theorems: integral, ratio, and alternating-series tests.
2. Vectors in three-dimensional space, spherical and cylindrical coordinates.
3. Partial derivatives.
4. Multiple integrals.
5. Topics in vector calculus.

Course Objectives:

This course focuses on power series, sequences and infinite series, vectors, functions of several variables, partial differentiation and their applications. The course views multiple integrals: double and triple.

Evaluation:

Homework, Attendance and Class Contribution (Quizzes, etc.)	10 %
Term Exams (2 Exams worth 25% each)	50 %
Final Exam	40 %
Total	100 %

Textbook:

Calculus , 4th ed., by Robert T. Smith and Roland B. Minton

Week	Sections	Topic
4	9.1	Sequences of Real number.
	9.2	Infinite Series
	9.3	The integral Test and Comparison Test
	9.4	Alternating Series

	9.5	Absolute Convergence and Ratio Test
	9.6	Power Series
	9.7	Taylor Series
	9.8	Application of Taylor Series
5	11.2	Vectors in Spaces.
	11.3	The Dot Product Space.
	11.4	The Cross Product.
8	13.1	Function of Several variables
	13.3	Partial Derivatives.
	13.5	The Chain Rule.
	13.6	The Gradient and Directional Derivatives.
	13.7	Extrema of Functions of several Variables.
10	11.6	Surfaces in Space.
	14.1	Double Integrals
	14.2	Area and volume using Double integrals.
	14.3	Double Integrals in Polar Coordinates.
13	14.5	Triple Integrals
	14.6	Cylindrical Coordinates
	14.7	Spherical coordinates.

Homework : Do all Problems which are not theoretical in nature.