



Course Number Course Name	Math 1520 Calculus II
Credit Value (Breakdown of theory and lab credits)	4 Theory
Catalog Course Description	Continues course of study begun in Calculus I. Covers integration techniques, numerical integration, improper integrals, some differential equations, sequences, series and applications. Prerequisite 1510. (4,4T+0L)
Student Learning Outcomes/Objectives /Competencies of the Course	<p>Student Learning Outcomes:</p> <ol style="list-style-type: none"> 1. Integration <ol style="list-style-type: none"> a. Determine the indefinite integrals and compute definite integrals of algebraic and transcendental functions using various techniques of integration including integration by parts, trigonometric substitution, and partial fraction decomposition. b. Compute improper integrals using the appropriate limit definitions. c. Solve problems involving separable differential equations. 2. Sequences and Series <ol style="list-style-type: none"> a. Compute the limit of sequences. b. Compute the sum of a basic series using its nth partial sum. c. Compute the sum of geometric and telescoping series. d. Determine if a series converges using the appropriate test, such as the nth term, integral, p-series, comparison, limit comparison, ratio, root, and alternating series tests. e. Determine if a series converges absolutely, converges conditionally or diverges. 3. Properties of power series <ol style="list-style-type: none"> a. Compute the radius and interval of convergence of a power series. b. Compute the Taylor polynomials of functions. c. Compute basic Taylor series using the definition. d. Compute Taylor series using function arithmetic, composition, differentiation, and integration. e. Compute limits with Taylor series. f. Approximate definite integrals with Taylor series and estimate the error of approximation. g. Determine the sum of a convergent series using Taylor series. 4. Applications of integration <ol style="list-style-type: none"> a. Compute volumes and areas of surfaces of solids of revolution. b. Compute length of curves. c. Apply integration using alternative coordinate forms and using a parameter.
College-Wide Student Learning Outcomes	<p>Math 1520 learning objectives align with the following NNMC College Wide Goal:</p> <p><i>Critical thought: Students are required to analyze and synthesize information and draw reasoned conclusions.</i></p>