Math 1320 Syllabus

Engineering Calculus II

This is the second semester of a four-semester Engineering Math sequence. This semester treats topics in single and multivariable differential and integral calculus, with a focus on engineering applications and projects.

Text: Calculus: Concepts and Contexts, 4th edition, by J. Stewart , chapters 6.5-11.

Course outline:

Week 1	6.5-6.6	Review, Average Values, Applications of Integration to Engineering
Week 2	7.1-7.3	Modeling with Differential Equations, Direction Fields, Separable Differential Equations
Week 3	7.4, 8.1-8.2	Exponential Growth and Decay, Sequences, Series
Week 4	8.3-8.4	Convergence Tests for Series, Estimating Sums
Week 5	8.5-8.6	Power Series, Representing Functions with Power Series
Week 6	8.7-8.8	Taylor and Maclaurin Series, Applications of Taylor Polynomials
Week 7	9.1-9.3	Three Dimensional Coordinates, Vectors, Dot Product
Week 8	9.4-9.5	Cross Product, Equations of Lines and Planes
Week 9	9.6-10.1	Functions and Surfaces, Vector Functions, Space Curves
Week 10	10.2-10.3	Derivatives and Integrals of Vector Functions, Arc Length, Curvature
Week 11	10.4-10.5	Velocity, Acceleration, Parametric Surfaces
Week 12	11.1-11.3	Functions of Several Variables, Limits, Partial Derivatives
Week 13	11.4-11.5	Tangent Planes, Linear Approximation, Chain Rule
Week 14	11.6-11.7	Directional Derivative, Gradient Vector, Maximum and Minimum Values
Week 15	11.8--	Lagrange Multipliers, Review

Course format: There are four 50 minute lecture presentations per week (or equivalent), and one 50 minute section meeting. Section meetings will focus on homework and project work. Projects will be drawn from the suggestions in the text, as well as from topics suggested by the College of Engineering. Students will be evaluated on the basis of regular homework and/or quizzes based on that homework; project work; 2-3 midterm exams administered during their section meetings; and an in-class final exam administered during the University scheduled time.