

**2005 Spring
MATH 187 Technical Mathematics 2 (Engineering)**

Outline

Hours Topics

Integration

1	25-1	Antiderivatives: Review of Differentiation Formula
1	25-2	The Indefinite Integral
1.5	28-1	The General Power Formula
1.5		Notes Change of Variables: Method of Substitution
0.5	25-3	The Area Under a Curve
1.5	25-4	The Definite Integral
2	25-5	Numerical Integration: The Trapezoidal Rule
1	25-6	Simpson's Rule

Applications of Integration

1	26-1	Applications of the Indefinite Integral
1.5	26-2	Areas by Integration
1.5	26-3	Volumes by Integration
1.5	26-4	Centroids
1.5	26-5	Moments of Inertia
1	26-6	Other Applications

Methods of Integration

1	28-2	The Basic Logarithmic Form
1	28-3	The Exponential Form
2	28-4	Basic Trigonometric Forms
2	28-5	Other Trigonometric Forms
2	28-6	Inverse Trigonometric Forms
2	28-7	Integration by Parts
2	28-8	Integration by Trigonometric Substitution
2	28-9	Integration by Partial Fractions: Nonrepeated Linear Factors
1	28-10	Integration by Partial Fractions: Other Cases

Expansion of Functions in Series

0.5	29-1	Infinite Series
1.5	29-2	Maclaurin Series
1.5	29-3	Certain Operations with Series
1.5	29-4	Computations by Use of Series Expansions
1	29-5	Taylor Series

Supplementary Topics

1	21-9	Polar Coordinates
1	21-10	Curves in Polar Coordinates
2		Notes Integration in Polar Coordinates
0.5	S-3	Functions of Two Variables
0.5	S-4	Curves and Surfaces in Three Dimensions
0.5	S-5	Partial Derivatives
1.5	S-6	Double Integrals

Lecture	46 hours
Test	6 hours
Leeway	3 hours