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OFFICIAL SYLLABUS

Math 152, Calculus II (Assumes 3 75 min/week)

(Adopted – Spring 2006; Committee: Z. Agustin , K. Fick , G. Pelekanos (Chair), S. Staples)

Textbook: Calculus 9th Ed. By Varberg, Purcell, Rigdon

Contents of the course:

Ch. 5. Applications of the Integral (recommended time: 6 days)

5.1 The Area of a Plane Region
5.2 Volumes of Solids: Slabs, Disks, Washers
5.3 Volumes of Solids of Revolution: Shells
5.4 Length of a Plane Curve
5.5 Work and Fluid Force **(OPTIONAL)**
5.6 Moments and Center of Mass

Ch. 7. Techniques of Integration (recommended time: 8 days)

7.1 Basic Integration Rules
7.2 Integration by Parts
7.3 Some Trigonometric Integrals
7.4 Rationalizing Substitutions
7.5 Integration of Rational Functions Using Partial Fractions
4.6 Numerical Integration
7.6 Strategies for Integration ***(example 5 and some exercises involving Newton's method should be postponed until chapter 9)***

Ch. 8. Indeterminate Forms and Improper Integrals (recommended time: 5 days)

8.1 Indeterminate Forms of Type 0/0
8.2 Other Indeterminate Forms
8.3 Improper Integrals: Infinite Limits of Integration
8.4 Improper Integrals: Infinite Integrands

Ch. 9. Infinite Series (recommended time: 12 days)

9.1 Infinite Sequences
3.7 Solving Equations Numerically
9.2 Infinite Series
9.3 Positive Series: The Integral Test
9.4 Positive Series: Other Tests
9.5 Alternating Series, Absolute Convergence, and Conditional Convergence
9.6 Power Series
9.7 Operation on Power Series
9.8 Taylor and Maclaurin Series
9.9 The Taylor Approximation to a Function

Ch. 10. Conics and Polar Coordinates (recommended time: 9 days)

10.1 The Parabola **(OPTICAL PROPERTY OPTIONAL)**
10.2 Ellipses and Hyperbolas **(OPTICAL PROPERTIES OPTIONAL)**
10.3 Translation and Rotation of Axes **(*Rotation* OPTIONAL)**
10.4 Parametric Representation of Curves in the Plane
10.5 The Polar Coordinate System
10.6 Graphs of Polar Equations
10.7 Calculus in Polar Coordinates

Any instructor should cover all of the material specified; additional sections are optional.