

(M-106) Integral Calculus

Weekly Course Details

Book: **Calculus by Swokowski, Olinick, Pence** (Sixth Edition)

3-Weeks

- 4.1. Antiderivatives and Indefinite Integrals.
- 4.2. Change of Variables in Indefinite Integrals.
- 4.3. Summation Notation and Area.
- 4.4. The Definite Integral.
- 4.5. Properties of the Definite Integral.
- 4.6. The Fundamental Theorem of Calculus.
- 4.7. Numerical Integration.
- 6.2. The Natural Logarithm Function.
- 6.3. The Exponential Function.
- 6.4. Integration Using Natural Logarithm and Exponential Function.

3-Weeks

- 6.5. General Exponential and Logarithmic Functions.
- 6.7. Inverse Trigonometric Functions.
- 6.8. Hyperbolic and Inverse Hyperbolic Functions.
- 6.9. Indeterminate Forms and l'Hopital's Rule.
- 7.1. Integration by parts.
- 7.2. Trigonometric Integrals.
- 7.3. Trigonometric Substitutions.

3-Weeks

- 7.4. Integrals of Rational Functions (Partial fractions).
- 7.5. Quadratic Expressions and Miscellaneous Substitutions.
- 7.7. Improper Integrals.

2-Weeks

- 5.1. Area Between Curves.
- 5.2. Volume (By Disk or Washer).
- 5.3. Volume (By Cylindrical Shells).

3-Weeks

- 5.5. Arc Length and Surfaces of Revolution.
- 9.1. Parametric Equations.
- 9.2. Arc Length and Surface Area.
- 9.3. Polar Coordinates.
- 9.4. Integrals in Polar Coordinates.