

MATH 1150 - COURSE DESCRIPTION

MA 1150 Elementary Calculus II

3(3-1.5) Winter

Applications of integration to areas, volumes, work, force, arc lengths. Differentiation and integration of exponential, logarithmic and trigonometric functions. Techniques of integration. Indeterminate forms and improper integrals.

Prerequisites: MA 1130, MA 1140 or MA 1000

Detailed Description : Applications of integration such as areas, volumes by disks, washers, cylindrical shells and slices, length of plane curves, area of surface of revolution, work, fluid pressure and force.

Logarithmic and exponential functions, derivatives and integrals of logarithmic and exponential functions, graphs involving exponentials and logarithms, inverse functions, hyperbolic functions, derivatives and integrals involving hyperbolic functions. First order differential equations and applications.

Inverse trigonometric functions, derivatives and integrals involving inverse trigonometric functions, inverse hyperbolic functions, derivatives and integrals involving inverse hyperbolic functions.

Techniques of integration such as integration by parts, integrating powers of sine and cosine, integrating powers of secant and tangent, trigonometric substitutions, integrating rational functions (partial fractions), Numerical integration (Trapezoidal Rule and Simpson's Rule).

Improper integrals. L'Hopital's Rule for indeterminate forms. Various types of indeterminate forms.