

DIFFERENTIAL CALCULUS

- Course Code: CAL01
- Course Credit: 3.0 UNITS
- Contact HOURS: 4.5 HOURS
- Semester: 1st
- Academic Year: 2021-2022



$\frac{d}{dx} \left[\frac{f(x)}{g(x)} \right] = \frac{g(x)f'(x) - f(x)g'(x)}{g(x)^2}$
 $F = mg = ma = m \frac{dv}{dt}$
 $m \frac{d^2x}{dt^2} = -kx$
 $\frac{dA}{dt} = \frac{dB}{dt} = -\frac{dC}{dt} = -\frac{dD}{dt} = (d_1)T^{\frac{1}{2}}AB - (d_2)T^{\frac{1}{2}}CD$
 $x^2 = A \frac{dT}{dt} = (c_1) \frac{dA}{dt} - (c_2)(T_0 - T)$
 $\left[x + \frac{b}{2a} \right]^2 = \frac{b^2 - 4ac}{4a^2}$
 $x + \frac{b}{2a} = \frac{\sqrt{b^2 - 4ac}}{2a}$ or $x + \frac{b}{2a} = -\frac{\sqrt{b^2 - 4ac}}{2a}$
 $(x+h, f(x+h))$
 $\frac{d}{dx} \int_a^x f(t) dt = f(x)$
 $\frac{d^2x}{dt^2} = -kx \Rightarrow f(x+h) - f(x)$

Calculus

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An introductory course covering the core concepts of limit, continuity and differentiability of functions involving one or more variables. This also includes the application of differential calculations in solving problems on optimization, rates of change, related rates, tangents and normals and approximations; partial differentiation and transcendental curve tracing.

Course Outcomes:

- 1. Have a working knowledge of the Basic concepts of functions and limits*
- 2. Differentiate algebraic and transcendental functions.*
- 3. Apply the concepts of differentiation in solving word problems*
- 4. Analyze and trace transcendental curves*

