CURRICULUM GUIDELINES

999 A: Instructional Division Date: November 15, 19

Technology Courses: New Courses Revisions Deletions Faculty of Science & Technology

If Revision, Section(s) Revised: sections 2 and 3

Specific objectives:

At the conclusion of this course, the student should be able to:

- calculate infinite limits and limits at infinity

- use a differential to estimate the value of a function in the neighbourhood of a given point and estimate errors

- apply derivatives to solve problems involving velocity and acceleration, related rates, and functional extrema

- interpret and solve optimisation problems

N::Course Content

- essential and removable discontinuities
- intermediate value theorem

2. The Derivative
- rates of change and tangent lines
- differentiation from definition

3. Inverse Functions: Exponential, Logarithmic and Inverse Trigonometric F
- definitions, properties, and graphs

- applications to graphing, extrema, related rates

- growth and decay problems
- differentiation of inverse trigonometric functions
- applications to graphing, extrema, related rates

- increasing and decreasing functions
- local extrema
- Rolle's Theorem and Mean Value Theorem
- curve sketching
- concavity; inflection points
- applied maximum and minimum problems
- rectilinear motion

5. Parametric Equations and Polar Coordinates

- parametric representation of curves in R^2

Optional Topics included at the discretion of the instructor

a formal limit proof (using epsilonics)