

## *COURSE DESCRIPTION*

- 1) Real numbers, limits, continuity, differential and integral calculus of functions of one variable.
- 2) Methods of integration, applications of calculus, elements of analytic geometry, improper integrals, sequences, and series.

## *COURSE OBJECTIVES/COMPETENCIES*

On completion of the **AB** section, students will be able to:

- Analyze the behavior and continuity of functions using limits.
- State the definition and explain the significance of the derivatives.
- Compute the derivative using the definition and associated formulas for differentiation.
- Solve application problems using differentiation.
- State and explain the significance of the Fundamental Theorem of Calculus.
- Compute anti-derivatives, indefinite and definite integrals of elementary functions.
- Read and interpret quantitative information when presented numerically, analytically or graphically.
- Compare alternate solution strategies, including technology.
- Justify and interpret solutions to application problems.
- Communicate process and results in written and verbal formats.

On completion of the **BC** section, students will be able to:

- Evaluate indefinite, definite and improper integrals using various algebraic, trigonometric and numerical techniques.
- Solve applied problems taken from the sciences using integration.
- Analyze curves in the plane described using parametric and polar equations.
- Define, classify, and analyze conic sections.
- Determine the convergence or divergence of sequences, series of constants, and power series.
- Compute polynomial approximation and power series representation of elementary functions using derivatives and integrals.
- Compare alternate solution strategies, including technology.
- Communicate process and results in written and verbal formats.
- Justify and interpret solutions to application problems.