



## University of Asia Pacific

### Department of Basic Sciences & Humanities

**Courses Title: Mathematics I**

**Course Code: MTH 101 (CSE)**

#### **Course Outline:**

Real Number System, Complex Numbers and their Elementary Properties. Rectangular Coordinates in Three Dimensions, The Equations of Plane and Straight Line, Sphere, Conicoids, Elementary Properties, Transformation of Axes. Vector Space, Vector in three dimensions, Vector algebra: Addition, Scalar Multiplication, Scalar and Vector Product, Multiple Products, Orthogonal Bases, Change of Orthonormal Bases. Differential Calculus-Functions, Limit, and Continuity, Differentiation, Successive Differentiation, Maclaurin's Theorem, Taylor's Theorem, Geometrical Meaning of Differential Coefficient Integral Calculus-Method of Substitution, Integration by parts, Integration of rational Fractions. Definite Integrals. Matrices: Definition; Algebra of Matrices Determinants: Adjoint of Square Matrices. Inverse of a Matrix, Rank of a Matrix. Elementary operations; Reduction to echelon form; Solution of a system of linear equations.