

### THIRD YEAR

<b>Engineering Analysis</b>	<b>COE301</b>
<b>Prerequisite : E202</b>	<b>(2-2-0-0)</b>

Matrix Analysis: Singular and non-singular matrices, Rank of a matrix, Elementary operations and equivalent matrices, Consistency of a set of equations, Uniqueness of solutions of sets of equations, Inverse method, Row transformation method, Gaussian elimination method, triangular decomposition method, Comparison of methods. Eigenvalues and eigenvectors, Cayley-Hamilton theorem, Systems of first-order ordinary differential equations, Diagonalisation of a matrix, Systems of second-order differential equations, Matrix transformation, Rotation of axes, application of matrices to electric cct. Interpolation: Polynomials, Curve Fitting, and Interpolation, Extrapolation. Solution of Differential Equation by Power Series: Legendre's equation, Legendre's polynomials, Bessel function of the first and second order kinds, Bessel function properties.