SYLLABUS FOR TAMILNADU COMMON ENTRANCE TEST (TANCET) - 2016

For Admission to M.E. / M.Tech. / M.Arch. / M.Plan. Degree Programmes

PART – I

ENGINEERING MATHEMATICS (Common to all Candidates)

Determinants and Matrices: Solving system of equations – Rank of the Matrix – Eigenvalues and eigenvectors – Reduction of quadratic form to canonical form.

Calculus and Differential Equations : Partial derivatives – Jacobians – Taylor's expansion – Maxima and Minima. Linear ordinary differential equations with constant coefficients – Simultaneous first order linear equations with constant coefficients. Formation of partial differential equation (PDE) – Solution of first order PDE – Solution of linear higher order PDE with constant coefficients.

Vector Calculus: Double and triple integrations and their applications – Gradient, Divergence, Curl and Laplacian – Green's, Gauss divergence and Stroke's theorem.

Functions of Complex Variables and Complex Integration: Analytic functions – Conformal Mapping – Bilinear transformation – Cauchy's integral theorem and integral formula – Taylor and Laurent Series – Singularities – Residues – Residue theorem and its applications.

Transforms: Laplace Transform – Inverse transforms – Application to solution of linear ordinary differential equations with constant coefficients. Fourier integral theorem – Fourier transform pair – Sine and Cosine transforms. - transform – Inverse Z–transform – Solution of difference equations using Z– transform.

Numerical Methods : Solution of linear system by direct and iterative methods – Interpolation and approximation – Numerical Differentiation and Integration – Solving Ordinary Differential Equations.

Applied Probability : Probability and Random variables – Standard Discrete and Continuous distribution – Moments – Moment generating function and their properties. Two-Dimensional Random Variables – Covariance – Correlation and Regression.