

Department of Mathematics

Syllabus for Summer Examination of Final Year B. tech. Students (50 percent of total syllabus) Date: September 23, 2020

Subject	Paper Code	Syllabus for Summer Examination (this syllabus is 50 percent of the total syllabus)
Engineering Mathematics -III	MA 201/MA 203	Chapter 1- Basic Concepts & Ideas, Geometric Meaning of $y' = f(x, y)$, direction field, exact equations, Integrating factors, Linear differential equation, Bernoulli's equations, orthogonal trajectories, applications to electrical circuits. Chapter 2- Second Order Differential equations, Homogeneous linear differential equation for real & complex roots, Euler Cauchy equation, existence & uniqueness theorem (Without proof) & Wronskian. Chapter 3- Non homogeneous equation, solutions by undetermined coefficients
Engineering Mathematics –IV	MA 202/MA 302A	Chapter 1- Introduction to Complex Variables. Chapter 2- Function of complex variables: Limit, continuity, differentiability, analytic functions and their properties, Cauchy-Riemann equation, harmonic functions, elementary complex functions and their properties.
Engineering Mathematics –IV	MA 302C	Chapter 1- Interpolation by polynomials, divided differences, error of the interpolating polynomial, piecewise linear and cubic spline interpolation. Chapter 2- Numerical integration, composite rules, error formulae. Chapter 3- Solution of a system of linear equations, implementation of Gaussian elimination and Gauss-Seidel methods, partial pivoting, row echelon form, LU factorization Cholesky's method, ill-conditioning, norms.
Engineering Mathematics –IV	PR 241	Chapter 1- Moments about mean moments about the mean in terms of moments about any point, skewness and kurtosis, introduction of correlation, regression coefficients, lines of regressions. Probability distribution, discrete and continuous probability distribution, Binomial, Poisson and normal distribution and its applications and importance in engineering field. Chapter 3- Picard's Method, Euler's Method.

Dr. Arunumar R. Patil

Head, Mathematics Department