SYLLABUS FOR M. TECH ADMISSION IN PRINTING ENGINEERING AND GRAPHIC COMMUNICATION

MATHEMATICS AND NUMERICAL ANALYSIS

Integration by resolution into partial fractions. Some elementary properties of definite integrals (to be defined as the limit of a sum) Lengths and areas of plane curve.
Numerical integration by Trapezoidal and Simpson’s rules
Hermitian, skew-hermitian and unitary matrices. eigenvalues and eigenvectors, diagonalisation of matrices, Cayley-Hamiltonian, quadratic forms.
Probability and Statistics: Set theory and elements of Boolean algebra, Definitions of probability and simple theorems, conditional probability, mean, mode and standard deviation, random variables, discrete and continuous distributions, Poisson, normal and Binomial distribution, correlation and regression
Numerical Methods: Truncation errors, round off errors and their propagation; Interpolation; Lagrange, Newton’s forward, backward and divided difference formulas, least square curve fitting, solution of non-linear equations of one variables using bisection, false position, secant and Newton Raphson methods; Rate of convergence of these methods, general iterative methods. Simple and multiple roots of polynomials.
Solutions of system of linear algebraic equations using Gauss elimination methods, Jacobi and Gauss-Seidel iterative methods and their rate of convergence; ill conditioned and well conditioned system. eigen values and eigen vectors using power methods.
Numerical integration using trapezoidal, Simpson’s rule and other quadrature formulas.

Ordinary Differential Equations: First order exact and linear equation, initial and boundary value problems, Laplace transforms. Solution of linear differential equation with constant coefficients by Laplace transform, Sequence and infinite series, convergent and divergent series, comparison tests, D’Alembert’s ratio test, Cauchy’s root test.
Fourier Series.
Vector Calculus: Vectors, position vectors, addition and subtraction of vectors, components of a vector.

GENERAL APTITUDE

Verbal Ability: English grammar, sentence completion, verbal analogies, word groups, instructions, critical reasoning.

PROGRAMMING LANGUAGE

Programming: Elementary concepts and terminology of a computer system and system software, C programming.
PRINTING TECHNIQUES
An introduction to different printing processes such as letter press, lithography/offset, gravure, intaglio, flexography, and screen printing. Introduction to digital printing, thermal printing, laser printing, ink jet printing etc.

WEB TECHNOLOGY

ELECTRICAL TECHNOLOGY
Electrical units, Dimensions, DC and AC circuits, DC Generators and Motors, Motor starters, Electrical measuring instruments, Different types of lamps used in printing, Hg-Vapour, Metal halide and Halogen lamps.

ELECTRONICS
Pulse, Digital waveform characterisation, duration and period, Rise and fall time; overshoot and undershoot, linearity of sweep and its measure, etc. Basis logic gates: AND, OR, NOT, NAND, NOR, EXOR etc. Logical symbols and truthtables. Boolean algebra, and DeMorgans theorem. Introduction to computer system design, CPU memory, I/O and peripheral Interface (Block level).

PRN/T/315 COLOUR AND IMAGING SCIENCE

ENVIRONMENTAL SCIENCE
Different types of pollution. Overview of pollution control strategy.