



Government Degree College(A)

(Affiliated to Adikavi Nannaya University, Rajamahendravaram)

Tuni, Kakinada District

Course Outcomes - MATHEMATICS

PAPER- I DIFFERENTIAL EQUATIONS

CO1:Identify the different types of first order and first degree differential equations and solve the problems.

CO2: Solve the different methods in first order but not first degree differential equations.

CO3:Understand the higher order linear differential equations with constant coefficients and can solve the different types of problems.

CO4:Apply the linear differential equation to solve the physical problems.

CO5:Apply the higher order differential equations in simple harmonic motion, simple pendulum problems.

CO6:Solve the Cauchy-Euler's differential equations.

CO7:Solve the differential equations by the method of variation of parameters.

PAPER- II Three dimensional analytical Solid Geometry

CO 1:Understand the concept of plane and can solve the problems like angle between planes, orthogonal projection on a plane.

CO2: Solve the problems on the concept of line and coplanar lines, the condition that a given line may lie in a given plane etc.

CO3: Understand the concept of sphere and can solve the problems.

CO4 :Solve the problems on the concepts of cones and cylinders.

CO5: Apply the concepts of three dimensional concepts in solving the volume integrals and surface integrals in vector calculus.

PAPER- III Abstract Algebra

CO-1: Define the group with important example and the elementary properties of groups, finite groups, composition table and the order of a group.

CO-2: Understand the conditions for subgroup of a group and examples of subgroups.

Identify the applications of Lagrange's theorem.

CO3: Understand the definition of Normal subgroups with examples and quotient group.

CO4: Define the homomorphisms and its elementary properties and the proof of first homomorphism theorem.

CO5: Understand the definition of permutation and product of permutations, even and odd permutations and the proof of Cayley's theorem.

PAPER- IV Real Analysis

CO1: Understand the concept of real numbers and the properties of real numbers and the definitions of supremum and infimum.

CO2: Solve the problems in sequences, limit of a sequence.

CO3: Solve the problems on infinite series by using the tests like ratio test, nth root test etc.,

CO4: Solve the problems on the basic concepts of continuity, its elementary properties and uniform continuity.

CO5: Understand the concepts of differentiation and the three mean value theorems can solve the problems. Define the Riemann integration and solve the problems

PAPER- V Ring Theory and Vector Calculus

CO-1: Define ring with good number of examples and the basic definitions in ring theory.

CO-2: Understand the definitions of integral domain and the theorems on integral domains.

CO-3: Understand the definition of homomorphisms with examples and the concept of kernel, the important theorems on kernel.

CO-4: Prove the three isomorphic theorems. ∇ Solve the problems on vector differentiation, gradient and its applications, divergence and curl of a vector point function.

CO-5: Solve the problems on the concepts of line, surface and volume integrals and on three vector integral theorems.

PAPER- VI Linear Algebra

CO-1: Understand the concept of vector space and subspace with examples and their properties.

CO-2: Define the basis, basis extension, dimension of subspace, and solve the problems.

CO-3: Understand the linear transformation and its properties, theorems on null space and range of the linear transformation.

CO-4: Solve the problems on rank of a matrix, Eigenvalues and Eigen vectors of a square matrix and Cayley-Hamilton theorem.

CO-5: Solve the problems on inner-product space, Gram-Schmidt orthogonalisation and Bessel's inequality.

PAPER- VII Numerical Analysis

CO-1: Solve the problems on types of errors.

CO-2: Solve the algebraic and transcendental equations by using the numerical methods.

CO-3: Solve the problems on finite difference operators and the relations among the operators.

CO-4: Interpolate the polynomials by using Newton's forward and backward, Gauss and Stirling's interpolation formulae.

CO-5: Interpolate the polynomial with unequal intervals by using Lagrange's interpolating polynomial, Newton's divided difference formula

PAPER- VIII-A-Advanced Numerical Analysis

CO-1: Fit an approximate curve by the method of least squares.

CO-2: Solve the problems in numerical differentiation and apply to find the maximum and minimum values of the given tabulated data.

CO-3: Solve the problems in numerical integration by using the trapezoidal rule, Simpson's 1/3 rule, Simpson's 3/8th rule and the errors.

CO-4: Find the approximate solutions of linear system of equations.

CO-5: Solve the first order differential equations by using the numerical methods.

PAPER- VIII-B-Special Functions

CO-1: Understand the concept of Hermite differential equations and its solution and the properties.

CO-2: Solve the problems on Laguerre polynomials and the recurrence relations.

CO-3: Understand the concept of Legendre's polynomial and can solve the problems.

CO-4: Solve the problems on Bessel's differential equation its generating function and properties.

CO-5: Apply the concept of Beta Gamma functions to solve some of the integrals.