A.S.D. Government Degree College for Women (A)
Kakinada

DEPARTMENT OF MATHEMATICS

2023-24

COURSE OUTCOMES

Semester -I

Title of Paper : ESSENTIALS ANDAPPLICATIONS OFMATHEMATICAL, PHYSICALANDCHEMICALSCIENCES

COURSE OUT COMES

CO1. Apply critical thinking skills to solve complex problem s involving complex numbers, trigonometric ratios, vectors, and statistical measures.

CO2.Understand the basic principles and concepts underlying abroad range of fundamental areas of physics and to Connect their knowledge of physics to every day situations

CO3. Understand the basic principles and concepts underlying abroad range of fundamental areas of chemistry and to Connect their knowledge of chemistry to daily life.

CO4. Examine the inter play and connections between mathematics ,physics, and chemistry in various applications.

CO5.Interprethe mathematical models and physical and chemical principles to explain and predict phenomena in different contexts.

CO6.Describe the history and evolution of the Internet and to gain an understanding of network security concepts, including threats, vulnerabilities, and countermeasures.

Title of Paper : ADVANCES IN MATHEMATICAL,PHYSICAL AND CHEMICALSCIENCES

COURSE OUT COMES

CO1.Apply of mathematics invarious fields of physics and chemistry

CO2. Explain the basic principles and concepts underlying abroad range of fundamental areas of physics and to connect their knowledge of physics to every day situations.

CO3.Use the different sources of renewable energy and their generation processes and advances in Nano – materials and their properties, with a focus on quantum dots.

CO4. Apply the knowledge in the emerging field of quantum communication and its potential applications.

CO5.Practicenon –pollutant methods to save the ecosystem and human health.

CO6. Apply mathematical models, physical and chemical principles in different contexts.

Title of Paper : ANALYTICAL SKILLS

COURSE OUT COMES

CO1**.** Understand the basic concepts of arithmetic ability, quantitative ability, logical reasoning, business computations and data interpretation and obtain the associated skills.

CO2. Acquire competency in the use of verbal reasoning.

CO3. Apply the skills and competencies acquired in the related areas.

CO4. Solve problems pertaining to quantitative ability, logical reasoning and verbal ability inside and outside the campus.

Semester -II

Title of Paper : DIFFERENTIAL EQUATIONS

COURSE OUT COMES

CO 1. Solve first order first degree linear differential equations.

CO 2. Convert a non-exact homogeneous equation to exact differential equation by using an integrating factor

CO3.know the methods of finding solution of a differential equation of first order but not of first degree

CO4. Solve higher-order linear differential equations for both homogeneous and non-homogeneous, with constant coefficients.

CO5.understand and apply the appropriate methods for solving higher order differential equations

Title of Paper : SOLID GEOMETRY

COURSE OUT COMES

CO 1. Understand planes and system of planes.

CO 2. Know the detailed idea of lines.

CO 3. Understand spheres and their properties.

CO4. Know system of spheres and coaxial system of spheres.

CO 5. Understand various types of cones.

Semester -III

Title of Paper : GROUP THEORY

COURSE OUT COMES

CO1. Acquire the basic knowledge and structure of groups.

CO 2. Get the significance of the notation of a sub group and cosets.

CO3. Understand the concept of normal subgroups and properties of normal subgroup.

CO4. Study the homomorphism and isomorphism with applications.

CO5. Understand the properties of permutation and cyclic groups.

Title of Paper : NUMERICAL METHODS

COURSE OUT COMES

CO1.Difference between the operators ,Δ,∇,E and the relation between them.

CO2. Know about the Newton – Gregory Forward and backward interpolation.

CO3.Know the Central Difference operators,δ,μ,σ and relation between them.

CO4. Solve Algebraic and Transcendental equations.

CO5.Underst and the concept of Curve fitting

Title of Paper : LAPLACE TRANSFORMATIONS

COURSE OUT COMES

CO1.Underst and the definition and properties of Laplace transformations

CO2. Get an idea about first and second shifting theorems and change of scale property.

CO3.Underst and Laplace transforms of standard functions like Bessel , Error function etc.

CO 4. Know the reverse transformation of Laplace and properties.

CO5.Get the knowledge of application of

Convolution theorem

Title of Paper : MATHEMATICAL SPECIAL FUNCTIONS

COURSE OUT COMES

CO1.Underst and the Beta and Gamma functions ,their properties and relation between these two functions, understand the orthogonal properties of Chebyshev polynomials and recurrence relations.

CO2.Find power series solutions of ordinary differential equations.

CO3.Solve Hermite equation and write the Hermite Polynomial of order (degree) n,also Find the generating function for Hermite Polynomials, study the orthogonal properties of Hermite Polynomials and recurrence relations.

CO4.SolveLegendreequation andwritethe Legendre equation of first kind, also findthegeneratingfunctionforLegendrePolynomials,understandtheorthogonalpropertiesofLegendre Polynomials.

CO 5.Solve Bessel equation and write the Bessel equation of first kind of order n, also find the generating function for Bessel

Semester -IV

Title of Paper : Ring Theory

COURSE OUT COMES

CO 1. Acquire the basic knowledge of rings ,fields and integral domains.

CO2. Get the knowledge of subrings and ideals.

CO3. Construct composition tables for finite quotient rings.

CO4. Study the homomorphism and isomorphism with applications.

CO5. Get the idea of division algorithm of polynomials over a field.

Title of Paper : REAL ANALYSIS

COURSE OUT COMES

CO 1. To get clear idea about the real numbers and real valued functions.

CO 2. To obtain the skills of analyzing the concepts and applying appropriate methods for testing converges of a sequence or series.

CO 3. To analyse the concepts of continuity, differentiability and Riemann integrability of a function and also to gain the skills about how to test these conditions of functions defined on the subsets of the real line.

CO4. To know the Geometrical interpretation of mean value theorems.

Title of Paper : INTEGRAL TRANSFORMS

COURSE OUT COMES

CO1.Understand the application of Laplace transforms to solve ODEs.

CO2. Understand the application of Laplace transforms to solve Simultaneous Des.

CO3. Understand the application of Laplace transforms to Integral equations.

CO4. Basic knowledge of Fourier - Transformations.

CO5.Comprehend the properties of Fourier Transforms and solve problems related to finite Fourier transforms.

Semester -V

Title of Paper : NUMERICAL METHODS

COURSE OUT COMES

CO 1. Understand the subject of various numerical methods that are used to obtain approximate solutions .

CO 2. Understand various finite difference concepts and interpolation methods.

CO 3. Work out numerical differentiation and integration whenever and wherever routine methods are not applicable.

CO 4. Find numerical solutions of ordinary differential equations by using various numerical methods.

CO 5. Analyze and evaluate the accuracy of numerical methods.

Title of Paper : MATHEMATICAL SPECIAL FUNCTIONS

COURSE OUT COMES

CO 1. Understand the Beta and Gamma functions, their properties and relation between these two functions, understand the orthogonal properties of Chebyshev polynomials and recurrence relations.

CO 2. Find power series solutions of ordinary differential equations.

CO 3. solve Hermite equation and write the Hermite Polynomial of order (degree) n, also find the generating function for Hermite Polynomials, study the orthogonal properties of Hermite Polynomials and recurrence relations.

CO 4. Solve Legendre equation and write the Legendre equation of first kind, also find the generating function for Legendre Polynomials, understand the orthogonal properties of Legendre Polynomials.

CO 5. Solve Bessel equation and write the Bessel equation of first kind of order n, also find the generating function for Bessel function understand the orthogonal properties of Bessel unction.

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