SMT N P S GOVT COLLEGE (W),

CHITTOOR

DEPARTMENT OF MATHEMATICS

B.SC.,

(Revised on 2021-2022)

COURSE OUTCOMES

LEARNING OBJECTIVES OR COURSE OUTCOMES

MATHEMATICS - SEMESTER – I

DIFFERENTIAL EQUATIONS - 1-1-112-R20

By the end of the course during the first semester with 5 hours a week and 4 credits a semester students will able to

- ***Solve linear differential equations***
- ***Convert non-exact homogeneous equations to exact differential equations by using integrating factors.***
- ***Know the methods of finding solutions of differential equations of the first order but not of the first degree.***
- ***Solve higher-order linear differential equations, both homogeneous and non homogeneous, with constant coefficients.***
- ***Understand the concept and apply appropriate methods for solving differential equations.***

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LEARNING OBJECTIVES OR COURSE OUTCOMES

MATHEMATICS - SEMESTER –II

THREE DIMENSIONAL ANALYTICAL SOLID GEOMETRY - 1-2-112-R20

After successful completion of this course, the student will be able to;

- ***Get the knowledge of planes.***
- ***Basic idea of lines, sphere and cones.***
- ***Understand the properties of planes, lines, spheres and cones.***
- ***Express the problems geometrically and then to get the solution.***

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LEARNING OBJECTIVES OR COURSE OUTCOMES

MATHEMATICS - SEMESTER –III

MATHEMATICS ABSTRACT ALGEBRA -1-3-112

After successful completion of this course, the student will be able to;

- ***Acquire the basic knowledge and structure of groups, subgroups and cyclic groups.***
- ***Get the significance of the notation of a normal subgroups.***
- ***Get the behaviour of permutations and operations on them.***
- ***Study the homomorphism and isomorphism with applications***
- ***Understand the ring theory concepts with the help of knowledge in group theory and to prove the theorems.***
- ***Understand the applications of ring theory in various fields.***

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LEARNING OBJECTIVES OR COURSE OUTCOMES

MATHEMATICS - SEMESTER –IV

MATHEMATICS REAL ANALYSIS - 1-4-112

After successful completion of this course, the student will be able to

- ***Get clear idea about the real numbers and real valued functions.***
- ***Obtain the skills of analyzing the concepts and applying appropriate methods for testing convergence of a sequence/ series.***
- ***Test the continuity and differentiability and Riemann integration of a function.***
- ***Know the geometrical interpretation of mean value theorems.***

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LEARNING OBJECTIVES OR COURSE OUTCOMES

MATHEMATICS - SEMESTER –IV

*Paper VI: MATHEMATICS LINEAR ALGEBRA - **1-5-125***

After successful completion of this course, the student will be able to;

- ***Understand the concepts of vector spaces, subspaces, basis , dimension and their properties.***
- ***Understand the concepts of linear transformations and their properties.***
- ***Apply Cayley - Hamilton theorem to problems for finding the inverse of a matrix and higher powers of matrices without using routine methods.***
- ***Learn the properties of inner product spaces and determine orthogonally in inner product spaces.***

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LEARNING OBJECTIVES OR COURSE OUTCOMES

MATHEMATICS - SEMESTER –V

Paper V: RING THEORY 1-5-125

After successful completion of this course, the student will be able to;

- ***Understand the basic concepts about rings, fields, sub rings.***
- ***Understand the properties of Homomorphism of rings.***
- ***Apply the important concepts associated with derivatives of vector fields such as Gradient, Divergence, Curl and Scalar potential etc.***
- ***Evaluate the Line, Surface, Volume integrals using various theorems of vector calculus.***
- ***Verify Gauss, Green's, Stokes theorem and use the applications.***

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LEARNING OBJECTIVES OR COURSE OUTCOMES

MATHEMATICS - SEMESTER –V

Paper VI : MATHEMATICS LINEAR ALGEBRA 1-5-126

After successful completion of this course, the student will be able to;

- ***Understand the concepts of vector spaces, subspaces, basis , dimension and their properties.***
- ***Understand the concepts of linear transformations and their properties.***
- ***Apply Cayley - Hamilton theorem to problems for finding the inverse of a matrix and higher powers of matrices without using routine methods.***
- ***Learn the properties of inner product spaces and determine orthogonally in inner product spaces.***

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MATHEMATICS - SEMESTER –VI

ELECTIVE Paper 7A : LAPLACE TRANSFORMS

After successful completion of this course, the student will be able to;

- ***Understand the Laplace transform of elementary functions.***
- ***Apply the rules and definition of Laplace transform for analyze the problems***
- ***Understand the basic concepts of Laplace transform of Sine and Cosine integrals***
- ***Understand the definitions and properties of inverse Laplace transforms***
- ***Apply Convolution theorem and Heaviside expansion theorem to analyze the given problems***

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MATHEMATICS - SEMESTER –VI

ELECTIVE Paper 8-A-1 :INTEGRAL TRANSFORMS

After successful completion of this course, the student will be able to;

- ***Student should understand the Solving of O.D.E.***
- ***Understanding the Application of Laplace Transforms.***
- ***Understands How to Transforms L.T to Integral Equations.***
- ***Understands the concept of Fourier Transforms-I***
- ***Know the methods of F.T , Relation between F.T & L.T. Also Finite Fourier Transforms.***

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MATHEMATICS - SEMESTER –VI

ELECTIVE Paper 8-A-2: ADVANCED NUMERICAL ANALYSIS

After successful completion of this course, the student will be able to;

- ***Understanding the procedure of curve fitting , and non-linear curve fitting.***
- ***And derrivatives of Newton's law of Forward and Backward Difference formula.***
- ***Understand the complete Matrix Method.***
- ***Understand the Quadrates on Errors , 3/8 rule 1/8 rule and Middle rule.***
- ***Should know the Introduction of Taylor's Series, Picard's Rule , Runge-Kutta's Methods.***

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LEARNING OBJECTIVES OR COURSE OUTCOMES

MATHEMATICS - SEMESTER –VI

PROJECT WORK

After successful completion of this course, the student will be able to;

- ***Understand the Basics of Laplace Transforms , Integral Transforms & Advanced Numerical Analysis.***
- ***Know the Methods of First Shifting Theorem & Second Shifting Theorem.***
- ***Application of Diffrential with constant Co-efficients.***
- ***Real life Applications.***
- ***Understand the concept of Convolution theorem and Heaviside's Expansion theorem.***