Department of Mathematics SCS Govt. Degree College Mendhar
Four year under graduate programme (FYUGP-NEP 2020)

Programme outcomes

PO1: Scientific temper will be developed in Students.

PO2: Students will acquire basic Practical skills & Technical knowledge along with domain knowledge of different subjects in the science stream.

PO3: Students will become employable; they will be eligible for career opportunities in Industry, or will be able to opt for entrepreneurship.

PO4: Students will possess basic subject knowledge required for higher studies, professional and applied courses etc.

PO5: Students will be aware of and able to develop solution oriented approach towards various Social and Environmental issues.

Programme specific outcomes

PSO1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations , terminology.

PSO2: A student should get adequate exposure to global and local concerns that explore them many aspects of mathematical sciences.

PSO3: Student is equipped with mathematical model inability, problem solving skills, creative talent and power of communication necessary for various kinds of employment.

PSO4: Student should be able to apply their skills and knowledge that is translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion.

PSO5: Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.

Course outcomes
COs of the Course Algebra and Geometry

CO1: To learn divisibility of integers and congruence relations.

CO2: To learn operations on polynomials, finding GCD of two polynomials and roots of polynomials.

CO3: To learn basic matrix algebra and method to find solutions to system of linear equations. Also to learn eigen values and eigenvectors of matrix.

CO4: To learn analytical geometry of 2 and 3dimensions which include study of conics, planes, lines, sphere, cone and cylinder.

COs of the course Calculus and Differential Equations

CO1: To learn basic properties of real numbers and its subsets which is backbone of Real Analysis.

CO2: To study functions in detail which is a fundamental structure in all sciences, and to be able to check continuity of a function.

CO3: To apply notion of derivative in mean value theorem and also in higher order derivatives which arise in all applied sciences.

CO4: To be able to solve first order and first degree differential equations.

COs of the course Mathematics Practical:

CO1: Problem solving skills of students are enhanced.

CO2: Theoretical concepts are strengthened by solving maximum no. of problems.

CO3: Due to one to one interaction with the teacher doubts of the students get cleared infany. CO4: Students learn how to apply mathematical concepts to practical and real life problems. CO5: Interdisciplinary approach is developed.

COs of the course Multivariable Calculus I

CO1: To study functions and several variables.

CO2: To study the notion of Continuity and Differentiability of multivariate functions. CO3: To find extreme values of multivariable functions using derivatives. CO4: To learn evaluation of double and triple integration and its application to area and volume.

COs of the course Laplace Transform and Fourier series

CO1: To learn the evaluation of Laplace transform of different types of functions,their derivatives and integrations.

CO2: To learn the evaluation of Inverse Laplace transform of functions, their derivatives and integrations, and to learn application of Convolution theorem.

CO3: To learn to apply Laplace Transform to solve Ordinary Differential equations with constant coefficients.

CO4: To learn to evaluate the Fourier series of various even and odd functions.
COs of the Course Linear Algebra:

CO1: To learn the importance of linear transformation in Physics, Engineering, Social sciences and various branches of Mathematics.

CO2: To learn to find Eigen values and Eigen vectors of a matrix which is used in the study of vibrations, chemical reactions and geometry.

CO3: To learn Inner Product spaces and Gram-Schmidt process of orthogonalization.
CO4: To get well equipped with Mathematical Modeling abilities.
COs of the Course Numerical Analysis:

CO1: To learn to apply the various numerical techniques for solving real life problems.

CO2: The problems which cannot be solved by usual formulae and methods can be solved approximately by using numerical techniques.

CO3: To fit curve to the data by using 5 different methods of interpolation as well as

extrapolation.

CO4: To find approximate solutions to difficult differential equations occurring in engineering sciences.

COs of the Course Mathematics Practical:

CO1: Problem solving skills of students are enhanced.

CO2: Theoretical concepts are strengthened by solving maximum no. of problems.

CO3: Due to one to one interaction with the teacher doubts of the students get cleared if any.

CO4: Students learn how to apply mathematical concepts to practical and real life problems.

CO5: Interdisciplinary approach is developed.

COs of the Course Metric Spaces:

CO1: To equip students with basic mathematical tools such as open & close sets, continuity, connectedness, compactness which can be used to study general topology and real & complex analysis.

CO2: To enhance abstract thinking and visualization of students.

CO3: To generalize the notion of distance, convergent sequence and continuity of functions.

CO4: To increase problem solving ability by solving examples and counter-examples of various concepts involved.

COs of the Course Real Analysis I:

CO1: To learn basic techniques and examples in analysis to be well prepared for courses like Topology, Measure theory and Functional analysis.

CO2: To study various types of sets and relations, and concept of countable and uncountable.

CO3: To study concept of sequence and series and hence find sum of infinite terms with different methods.

CO4: To study notion of l.u.b and g.l.b which helps to learn integrations which helps to find area under any functions.

COs of the Course Group Theory:

CO1: To learn fundamental properties and mathematical tools such as closure, identity, inverse and generators.

CO2: To study algebraic structure 'Groups' in detail which is useful in study of Rings, Modules, Algebraic topology, Analysis.

CO3: To enhance abstract thinking of students.

CO4: To learn to compare two different algebraic structures and study transfer of properties in- between these structures through homomorphism and isomorphism.

COs of the Course Ordinary Differential Equations:

CO1: To learn methods to solve linear differential equation with constant coefficients. CO2: To learn methods for solving non-homogenous differential equation.
CO3: To learn power series solution method using ordinary and singular points. CO4: To solve system of first order differential equations.

COs of the Course Number Theory:

C01: In this course, students learn the properties of these to integers in detail.

CO2: Students can find integer solutions to the system of equations which arises in real life problems.

CO3: Students study various theorems on primes and also learn congruence which are used in cryptography.

COs of the Course Complex Analysis:

CO1: To learn basic algebraic properties of complex numbers and limit and continuity of Complex functions.
CO2: To learn analytic functions and the C- Requations as its necessary and sufficient condition

CO3: To learn tools which are useful in finding integration of Complex valued functions. CO4: To learn sequences and series of Complex valued functions.
CO5: To learn applications of residues and poles in integrals of complex functions.

COs of the Course Real Analysis:

CO1: To learn Riemann Integral and its properties in detail, leading to fundamental theorem of calculus and Mean value theorems.

CO2: To study different tests for solving improper integrals of first and second kind.
CO3: To study point wise and uniform convergence of sequences and series of functions .

COs of the Course Ring Theory:

CO1: To study the algebraic structure Ring in detail through various examples.
CO2: To learn the construction of field of quotients of an integral domain.
CO3: To study the Rings of polynomials and its factorization over a field.
CO4: To study the notion of ideals and factor rings with examples.
CO5: To study Unique Factorization Domain, Euclidean Domain and related results.

COs of the Course Partial differential equations:

CO1: To understand the concept of Ordinary differential Equations in more than two variables.

CO2: To learn the application of Ordinary differential Equations through method to find Orthogonal Trajectories.

CO3: Introduction of first order Partial Differential Equations.

CO4: Learn methods to solve first order Partial Differential Equations.

COs of the Course Graph Theory:

CO1: To introduce the concepts of Graphs, which is an important tool for Mathematical Modeling.

CO2: To study different types of graphs and operations on graphs.

CO3: To study the concept of trees in detail and algorithms to find special spanning trees. CO4: To study Directed Graphs and its applications

COs of the Course Computational Geometry:

CO1: Students learn the representation of objects in 2D and 3D in the form of matrices.

CO2: To study the transformations like reflection, rotation, scaling, shearing, translation of objects in 2D and 3D and their geometrical significance.

CO3: Students learn to generate plane curves by using parametric equation.

CO4: All the concepts help students to learn graphic display of objects on computer.