DEPARTMENT: MATHEMATICS

PROGRAMME: B SC

Statements of Programme Specific Outcomes (PSOs)

By the end of this course, the students will be able to:

1. Understand the basic concepts of Algebra and Trigonometric and calculus
2. Solve Geometry, Differential Equations, Vector Calculus and Inproper Integrates
3. Define Advanced calculus, sequence and series and differential Equations
4. Perform a partial differential equations and its importance
5. Understand the study of Spaces
6. Describe the law of Group theory
7. Understand the special theory of Relativity.

Statement of Course Outcomes (Cos)

Course: Algebra and Trigonometry (M1)

Course Outcomes: By the end of this course, the students will be able to:

1. Perform matrics in homogeneous and non-homogeneous linear equation
2. Solve theory of equation
3. Write expansion of trigonometric functions
4. Understand the group theory

Course: Calculus (M2)

Course Outcomes: By the end of this course, the students will be able to:

1. Understand the basic properties of limit
2. Understand the uses of Maclaurin and Taylor series expansion
3. Solve Partial Differential equations
4. Understand the concept of definite integrals

Course: Geometry and differential Equations (M3)

Course Outcomes: By the end of this course, the students will be able to:

1. Understand the theory of sphere, cone and cylinder
2. Differentiate between exact, linear, Bernoulli's and higher order differential equations
3. Find the unknown solution by using known solution of higher order differential Equations
4. Understand the formation of difference equation

Course: Vector calculus and Improper Integrals (M4)

Course Outcomes: By the end of this course, the students will be able to:

1. Understand Vector differntain , rediant, divergence and curve
2. Evaluation of double and triple ingtergartin
3. Describe surface integral, volume, Green's and Stoke's Theorem
4. Solve beta and gamma functions

Course: Advanced calculus, sequence & series (M5)

Course Outcomes: By the end of this course, the students will be able to:

1. Understand the uses of mean value theorems
2. Calculate maxima and minima and saddle points of functions
3. Describe sequences
4. Describe series and how to apply test of series.

Course: Differential Equation & Group Homomorphism (M6)

Course Outcomes: By the end of this course, the students will be able to:

1. Classify Besse's and Legendre's equations
2. Understand the concept of Laplace transform and their applications
3. Write the solutions of ordinary differential equations with constant and variable coefficient
4. Understand the theorems on group and subgroup

Course: Partial differential Equations and calculus of variation (M7)

Course Outcomes: By the end of this course, the students will be able to:

1. Formation of partial differential equations by eliminating arbitrary function and constant
2. Understand the method of Lagrange's equation
3. Solve the partial differential equation of second and higher order
4. Perform calculus of variation

Course: Mechanics (M8)

Course Outcomes: By the end of this course, the students will be able to:

1. Describe analytical condition of equilibrium of coplanar forces
2. Find out velocities and accelerations along radial and transverse directions

3. Understand constraints D' Alembert's Principle and Lagrange's equations
4. Solve the one-body problem and central orbits and equations of motion

Course: Analysis (M9)

Course Outcomes: By the end of this course, the students will be able to:

1. Understand to solve problems on Fourier series
2. Define the Riemann-setting
3. Describe Differentiability of complex function
4. Solve the mapping of elementary function.

Course: Metric space, Complex Integration & Algebra (M10)

Course Outcomes: By the end of this course, the students will be able to:

1. Define metric space
2. Understand basic concepts of completeness, compactness and connectedness
3. Describe Ring Theory
4. Solve complex integration

Course: Abstract Algebra (M11)

Course Outcomes: By the end of this course, the students will be able to:

1. Understand the Automorphisms
2. Define the Vector-spaces and sub-spaces
3. Understand the concept of Algebra of linear transformation
4. Describe Gram-Schmidt Orthogonalisation process

Course: Special Theory of Relativity (M12)

Course Outcomes: By the end of this course, the students will be able to:

1. Understand the concept of Newton relativity
2. Determine the Lorentz contraction Factor
3. Analyse the tensors
4. Understand the concept of E=MC2