

**DEPARTMENT OF MATHEMATICS**

**COURSE OUTCOMES**

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| SL.NO. | YEAR | COURSE CODE | COURSE NAME | COURSE OUTCOME |
| 1 | 2023-24 | RS1-911 | ESSENTIALS AND APPLICATIONS OF MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES | Apply critical thinking skills to solve complex problems involving complex numbers, trigonometric ratios, vectors, and statistical measures. |
| Understand the interplay and connections between mathematics, physics, and chemistry in various applications. Recognize how mathematical models and physical and chemical principles can be used to explain and predict phenomena in different contexts. |
| 2 |  | RS1-912 | ADVANCES IN MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES | Explore the applications of mathematics in various fields of physics and chemistry, to understand how mathematical concepts are used to model and solve real-world problems. |
| Understand the interplay and connections between mathematics, physics, and chemistry in various advanced applications. Recognize how mathematical models and physical and chemical principles can be used to explain and predict phenomena in different contexts. |
| 3 |  | S2-271 | DIFFERENTIAL EQUATIONS | Will be able to explain the concept of Differential Equations |
| Will be able to convert separable and homogeneous equations to exact differential equations by using integrating factors. |
| Apply different methods for solving differential equations of first order but not of first degree |
| Will be able to find the solution of higher order linear differential equations with constant co-efficient. |
| 4 |  | S2-272 | SOLID GEOMETRY | Will be able to find the Plane equation |
| Will be able to calculate shortest distance between skew lines |
| Understand the properties of Spheres |
| Able to find the equations of cones and cylinders |
| 5 |  | S3-271 | ABSTRACT ALGEBRA | Will be able to define the concept of semi group and group and give certain example of these. |
| Homomorphism and isomorphism for groups. |
| Will be able to understand simple use of Lagrange’s theorem. |
| Will be able to classify certain types of groups. Attain knowledge in rings, sub rings and ideals. |
| 6 |  | S4-272 | LINEAR ALGEBRA | Will be recognize the concepts of the terms span, linear independence, basis, and dimension, and apply these concepts  |
| Use matrix algebra and the related matrices to linear transformations |
| Compute and use Eigen vectors and Eigen values |
| Determine and use orthogonality and inner product space |
| 7 |  | S4-271 | REAL ANALYSIS | Will be able to find the limit for real sequences |
| Will be able to prove whether the function is continuous or differentiable |
| Will be able to prove the theorems in Riemann integration |
| 8 |  | S5-271 | MULTIPLE INTEGRALS AND APPLICATIONS OF VECTOR CALCULUS | Will be Learn multiple integrals as a natural extension of definite integral to a function of two variables in the case of double integral / three variables in the case of triple integral |
| Learn applications in terms of finding surface area by double integral and volume by triple integral. |
| Determine the gradient, divergence and curl of a vector and vector identities |
|  Evaluate line, surface and volume integrals |
| Analyze line, surface and volume integrals and estimate the change of order of integration  |
| understand relation between surface and volume integrals (Gauss divergence theorem), relation between line integral and volume integral (Green’s theorem), relation between line and surface integral (Stokes theorem |
| Understand the application of Green‘s Gauss and Stokes theorems . |
| 9 |  | S5-272 | INTEGRAL TRANSFORMS WITH APPLICATIONS | Will be able to evaluate Laplace transforms of certain functions, find Laplace transforms of derivatives and of integrals. |
| Determine properties of Laplace transform which may be solved by application of special functions namely Dirac delta function, error function, Bessel function and periodic function. |
| . Understand properties of inverse Laplace transforms, find inverse Laplace transforms of derivatives and of integrals |
| . Solve ordinary differential equations with constant/ variable coefficients by using Laplace transform method |
| Comprehend the properties of Fourier transforms and solve problems related to finite Fourier transforms |

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