

Department of Mathematics

Programme Outcomes :

1. Creating and Developing a positive attitude towards the students that mathematics is an interesting and valuable subject.
2. Developing a Scientific Temper in the Students.
3. Students will acquire basic Practical skills and Technical Knowledge applicable in different other Science subjects.
4. Ability to pursue advanced studies and research in pure and applied mathematical science.
5. Ability to analyse a problem, identify and define the computing requirements which may be appropriate to its solutions.
6. Becoming a mathematical thinker.
7. Eligible for various job opportunities.
8. Enable the students to develop solution oriented approach towards the various Social and Environmental issues.

Programme Specific Outcomes :

1. To formulate and develop mathematical arguments in a logical manner.
2. To be able to apply critical thinking skills to solve problems mathematically.
3. To be able to use computer technology properly to solve problems.
4. To be able to construct mathematical arguments and proofs.

Course Outcome :

FIRST SEMESTER

Paper 101 : ALGEBRA-1

1. Understanding the basic concepts of Algebra.
2. Learn about the Inequalities and Theory of Equations. Geometric and Arithmetic Mean, Holder's and Minkowski's inequalities.
3. learn about the Series and various methods to show the convergence of the series.
4. learn about mappings, equivalence relations, congruence modulo n , Groups and its elementary properties, types of groups, permutations, isomorphisms.
5. learn about Matrices and its types, Ranks, Eigen values and Cayley-Hamilton theorem.
6. learn De Moivre's theorem, Expansion of trigonometric functions.

SECOND SEMESTER

Paper 202 : CALCULUS AND ORDINARY DIFFERENTIAL EQUATIONS

1. learn the various Mean Value Theorems, L-Hospital's rule, expansion of standard functions : e^x , $\sin x$, $\cos x$, $\log(1+x)$, $(1+x)^m$, $\sin^{-1} x$, $\cos^{-1} x$, $\tan^{-1} x$.
2. learn about the limit and continuity for functions of two and three variables.
3. learn about the Partial Differentiation, Maxima and Minima of functions of two variables.
4. learn about the radius of curvature of cartesian and polar equations and Asymptotes.
5. learn about the integral and double integrals.

8/7/2019

Principal
South East Manipur College
Kamlathabi

THIRD SEMESTER

Paper 303 : VECTOR, GEOMETRY AND PROBABILITY

1. To understand the Vectors and theorems on Gauss Green, Stokes and related problems.
2. Applications on Two and three dimensional Geometry.
3. Learn about the Change of axes, pair of straight lines.
4. Understand that every general equation of second degree in two variables always represents a conic section.
5. Learn about the concepts and various problems regarding the sphere, cone, cylinder, central conicoids and paraboloids.
6. Understand the basic concepts of probability and convergence in probability.

FOURTH SEMESTER

Paper 404 : MECHANICS(DYNAMICS, STATICS, RIGID DYNAMICS)

1. To understand the components of velocities and accelerations.
2. Dynamics of a particle and motion on smooth and rough plane curves, motion in resisting medium, Kepler's law.
3. Acceleration in different Coordinate System
4. learn about the Equilibrium condition of coplanar forces and equilibrium of strings.
5. learn about the acceleration in different coordinate system
6. Understand about the moments and products of inertia, momental ellipsoid.

FIFTH SEMESTER

Paper 505 : ABSTRACT ALGEBRA AND LINEAR ALGEBRA

1. Learn about the concepts of Normal groups, quotient groups, homomorphism, isomorphism, automorphism and various theorems, Kernel, Cayley's theorem, Sylow theorem, p-sylow subgroups.
2. Learn about the concepts of rings and its properties, fields and related theorems, Ideals and quotient rings, homomorphism and isomorphism of rings, kernel, polynomial rings, maximal ideal, prime ideal, unique factorization domain.
3. learn about the concepts of vector space over the field K , necessary and sufficient condition for being a subspace, linear dependence, linear independence and their basic properties.
4. learn about the linear transformation.
5. learn about the inner product spaces.
6. Application of Cauchy Schwarz inequality and Gram-Schmidt orthogonalisation.

Paper 506 : ANALYSIS I (REAL ANALYSIS)

1. Understand the concepts of real number system, order completeness in \mathbb{R} , bounded and unbounded sets, limit points, lub, glb.
2. Understand the bounded sequence, Cauchy's general principle of convergence, convergent sequence and their properties, lim sup, lim inf.
3. Understand the types of discontinuities, uniform continuity.
4. Learn about the algebra of Riemann integrable functions.
5. Learn about the functions of several variables and multiple integrals.

8/7/2019
Principal
South East Manipur College
Komlathabi

Paper 507 : NUMRICAL ANALYSIS AND COMPUTER PROGRAMMING

1. Learn about various interpolation methods to find numerical solutions.
2. Learn about various methods to find solution of algebraic and transcendental equations.
3. Learn about the basics of c programming and various problems.

SIXTH SEMESTER

Paper 605 : PARTIAL DIFFERENTIAL EQUATION, LAPLACE TRANSFORMATION AND CALCULUS OF VARIATION

1. Learn about the origin of first order pde, formation of pde, Lagrange's method of solving pde of order one.
2. Learn about solving pde of first order but of any degree.
3. To find the complete solution of pde of second order.
4. To find the solutions of linear homogenous pde with constant coefficients.
5. Learn about Laplace transformation and its properties and application of Laplace transformation in solving pde.

Paper 606 : ANALYSIS II (METRIC SPACES AND COMPLEX ANALYSIS)

1. Learn about the definition and examples of metric space, subspace, open and closed sets, neighbourhood, limit point, adherent point, interior point, closure of a set, dense sets.
2. Learn about continuity of a function defined on metric space.
3. Learn about compact metric space, sequential compactness, Bolzano weirstrass property, finite intersection property and equivalence among the kinds of compactness.

Paper 60707 : SPECIAL THEORY OF RELATIVITY AND TENSORS (OPTIONAL)

1. Learn about the basic aspects of Special Theory of Relativity.
2. Learn about the Consequences of Lorentz transformation equations.
3. Learn about the relativistic force law and the dynamics of a single particle.
4. Learn about the transformation properties of momentum, energy, mass and force.

[Handwritten Signature]
8/7/2019

Principal
South East Manipur College
Kamlathabi