Class: M.Sc. Ist Year (Mathematics)	**Semester:I (Odd)**
Subject: Advanced Abstract Algebra-I	
Paper:MM-401	
Paper (PG): I	
S. No.	**Course Outcomes**
1.	In Unit 1,Students Are Made To Learn About Automorphism Group,Normaliser, Centralizer, Composition Series Sylow's Theorem And Their Applications And Cauchy Theorem For Finite Groups.
2.	In Unit 2,Students Are Taught About The Basics Of Rings, Fields And Prime Fields. Field Extensions, Algebraic Extensions, Algebraically Closed Fields And Splitting Fields Along With Their Numerical Applications Are Also Taught.
3.	In Unit 3,Explained Details About Seperable Extensions ,Perfect Fields, Galois Fields And Its Fundamental Theorem Are Provided Dihedral Groups And Fundamental Theorem Of Algebra Are Provided.
4.	In Unit 4,Solvable Groups, Alternating Groups, Roots Of Unity And Cyclic Extensions Are Taught.

Class: M.Sc. Ist Year (Mathematics)	**Semester:I (Odd)**
Subject: Real Analysis –I	
Paper: MM -402	
Paper (PG): II	
S. No.	**Course Outcomes**
1.	Students Will Be Able To Understand About Definition And Existence Of Riemann Stieltjes Integral, Properties Of The Integral, Integration And Differentiation, The Fundamental Theorem Of Integral Calculus, Integration By Parts, Integration Of Vector-Valued Functions, Rectifiable Curves.
2.	Students Will Be Able To Understand About Pointwise And Uniform Convergence, Cauchy Criterion For Uniform Convergence, Weirstrass M-Test, Abel's Test And Dirichlet's Test For Uniform Convergence, Uniform Convergence And Continuity, Uniform Convergence And Riemann Stieltjes Integration, Uniform Convergence And Differentiation, Existence Of A Real Continuous Nowhere Differentiable Function, Equicontinous Families Of Functions, Weierstrass Approximation Theorem
3.	Students Would Have The Understanding Of The Following Topics Functions Of Several Variables : Linear Transformations, Derivative In An Open Subset Of Rn, Chain Rule, Partial Derivatives, Directional Derivatives, The Contraction Principle, Inverse Function Theorem, Implicit Function Theorem, Jacobians, Extremum Problems With Constraints, Lagrange's Multiplier Method, Derivatives Of Higher Order, Mean Value Theorem For Real Functions Of Two Variables, Interchange Of The Order Of Differentiation, Differentiation Of Integrals.

Class: M.Sc. Ist Year (Mathematics) **Semester:I(Odd)**
Subject: Topology
Paper(Pg): MM-403
Paper (PG): III

S. No.	Course Outcomes
1.	Students Will Be Able To Understand About Topological Spaces, Dense Sets Base For Topology , Comparison Of Topologoies On A Sets Students Will Learn About Topology On A Set
2.	Students Will Be Able To Understand About Product Topology ,Seperation Axioms , Quotient Topology,Haudorffness Of Quotient Space
3.	Students Will Be Able To Understand About C R And Tychonoff Theoram ,Normal And T4 Spaces , Filters And Their Convergence Students Gets To Know About Filters And Their Convergence
4.	Students Will Be Able To Understand About Compactness ,Finite Intersetion Property ,Regularity And Normality Of Compact Hausdroff Space,Stonecech Compactification Students Gets To Know Compactness Of A Space

Class: M.Sc. Ist Year (Mathematics) **Semester:I(Odd)**
Subject: Complex Analysis -I
Paper(Pg):MM- 404
Paper (PG): IV

S. No.	Course Outcomes
1.	Students Will Be Able To Understand About Power Series And Its Convergence, Power Of A Complex Number , Their Branches With Analiticity, Cauchy Theoram Students Gets To Know About Various Elementry Complex Functions
2.	Students Will Be Able To Understand About Index Or Winding Number,Cauchy Integral Formula, Zeros Of Analytic Functions, Liouville Theoram Students Will Know About The Practical Use Of These Theoram
3.	Students Will Be Able To Understand About Maximum And Minimum Modulus Principal ,Schwarz Lemma, Laurents Series ,Meromorphic Function ,Argument Principal Students Gets To Know About Singularities Of The Function
4.	Students Will Be Able To Understand About Residue Theoram , Residue At A Simple Pole, Bilinear Transformation ,Conformal Mapping Students Gets To Know The Use Of Above Theorem In Practical Problems

Class:- M.Sc. Ist Year (Mathematics)	**Semester:- I (ODD)**
Subject: Differential Equations-I **Paper-MM-405** **Paper (PG): V**	
S.No	**Course Outcome**
1.	In Unit 1 , Students Learn About Initial Value Problemsand Equivalent Integral Equations. Students Gets To Know The Meaning Of Initial Value Probl;Em And Integral Equation With Relationship Between Them.
2.	In Unit 2,Students Learn About Linear Differential Equations With Its Different Forms. Students Gets To Know Linear Homogenous/ Non – Homogenous System, Adjoint System With Constant Coefficient.
3.	In Unit 3, Students Learn About Higher Order Differential Equations And Wronskian Theory. Students Gets To Know Linear Differential Equations Of Nth Order , Linear Dependence And Independence Of Solutions ,Wronskian Theory, Non-Homogenous Diff. Eq. With Different Forms.
4.	In Unit 4, Students Learn About System Of Diff. Eq. And Maximal &Minimal Solutions. Students Gets To Know Dependence Of Solutions On Initial Conditions And Parameters ,Maximal & Minimal Solutions , Differential Inequalities.

Class:- M.Sc. Ist Year (Mathematics)	**Semester:- II (Even)**
Subject: Advanced Abstract Algebra-II **Paper:MM-407** **Paper (PG): I**	
S.No	**Course Outcome**
1.	In Unit 1 students learn about Commutators and their properties, Central series, Nilpotent group, Upper and Lower central series and their properties.
2.	In Unit 2 students learn about linear transformations, Invariant subspace of a vector space, Nilpotent Transformations, Canonical Forms: Jordan form, Rational canonical form and its elementary divisors.
3.	In Unit 3 students learn about Modules ,definition, examples, submodules and direct sums, R-homomorphisms and Quotient modules, Completely reducible modules, Free modules.
4.	In Unit 4 Students learn about Noetherian and Artinian modules and rings Nil and Nilpotent ideals, Hilbert Basis Theorem, Wedderburn-Artin theorem and consequences.

Class:- M.Sc. Ist Year (Mathematics) **Semester:- II (Even)**
Subject: - Real Analysis -II
Paper:MM-408
Paper (PG): II

S.No	Course Outcome
1	In Unit-I, Students learnt about Lebesgue Outermeasure, G_δ sets, F_σ sets, Borel sets, Lebesgue measure, Measurable Functions Simple Functions and their properties.
2	In Unit-II, Students learnt about Sequences of functions, Almost uniform convergence, convergence in measure, Lebesgue Integral and their properties.
3	In Unit-III, Students learnt about Integral of non- negative measurable functions, General Lebesgue Integral, Functions of Bounded Variations.
4	In Unit-IV, Students learnt about Differentiation of an integral, Indefinite integral Function, Lebesgue Point, Absolutely continuous functions.

Class:- M.Sc. Ist Year (Mathematics) **Semester:- II (Even)**
Subject: - Computer Programming (Theory)
Paper:MM-409
Paper (PG): III

S.No.	Course Outcome
1	Explained Numerical constants and Variables,Arithmetic expressions, Input/Output, Conditional flow, looping. Students learnt about the Basics of Fortran,Conditional flow statements and Looping.
2	Explained Logical expressions and Control flow, Functions ,Subroutines and Arrays Students learnt about Logical Expressions and Procedures.
3	Explained Format specifications, Strings, Array arguments. Derived data types. Students learnt about Formatting and concept of Strings ,Derived data types.
4	Explained Processing files, Pointers ,Modules ,Fortran 90 and 95 Features. Students learnt how Fortran programs are stored creating files and Applications of Fortran 90 and 95.

Class:- M.Sc. Ist Year (Mathematics) **Semester:- II (Even)**
Subject: Differential Equations-II
Paper:MM-411
Paper (PG): V

S.No.	Unit	Course Outcome
1	I	Interpret The Spaces of Analytic functions and their completeness,Hurwitz's theorem,Montel's Theorem,Riemann Mapping Theorem,Infinite Products,Weierstrass factorization theorem Factorization of Sine function. Students will be able to understand the Gamma function and its properties, functional equaton For gamma function,Integral Version of gamma function.
2	II	Explain the meaning of Riemann-Zeta function,Riemann's functional equation,Mittag-Leffler's Theorem. In this unit Analytic Continuation,Uniqueness of direct analytic continuation, uniqueness of Analytic continuation along a curve and Specially the Power series method of analytic continuation Will help the students to understand the Geometrical Interpretation of analytic Continuation.
3	III	Explain the Harmonic functions as a disk,Poisson's Kernel.Harnack's Inequality,Harnack's theorem Canonical Product,Jensen's formula,Poisson-Jensen formula. In this unit students learnt about the theorems specially the Dirichlet Problem for unit disk. Dirichlet Problem for a region.
4	IV	Interpret the Order of an entire function,Exponent of Convergence,Borel theorem,Hadamard's Factorization theorem.Bloch's theorem,Schotty's theorem,Montel-Carathedory theorem. This unit covers specially the naming theorems.

Class:- M.Sc. Ist Year (Mathematics)	Semester:- II (Even)
Subject:	
Paper:MM-411	
Paper (PG): V	
Sr. No.	**Course Outcomes**
1.	Explained the Linear Second order equations with their Adjoint and Self Adjoint, Pruffer transformation, Oscillatory and Non Oscillatory equations. Students have learned how to convert linear second order equation to self adjoint equation and zeros of a solution and how oscillatory and non oscillatory equations behave.
2.	Explained Sturm Theory, Elementary Linear Oscillation, Autonomous System, Critical Points of Linear Systems. Students have learned how Sturm theory works for finding the solutions, different paths works in linear system, which type of critical points are there and stability of critical points and their applications..
3.	Explained Critical Points of Non Linear Systems, Liapunov Functions and their Stability Criteria, Limit Cycle and periodic Solutions. Students have learned what the behavior of critical points is in non linear systems with their stability, working of Liapunov function, existence and non existence of limit cycles and periodic solutions.
4.	Explained Second Order Boundary Value Problem, Eigen Values and Eigen Functions, Green Function. Students have learned what is a boundary value problem with its different cases, sturm liouville boundary value problem and how to calculate Eigen values and Eigen functions corresponding to those values, how to construct green function and how it behaves with their applications.