**Name of Assistant/Associate Professor:** Ms. Savitri

**Classes and Subjects :-** B.sc. I( No. theory and trignometry),B.sc. II(Special function and fourier transform),M.sc. (P)(Integral   
 Equations and Calculus of Variations),M.sc.(F)(Algebraic No. Theory)

**Subject Lesson Plan: 14 weeks (from January 2018 to April 2018)**

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| **Week 1:**  **B.Sc I-** Divisibility, G.C.D.(greatest common divisors), L.C.M.(least common multiple).  **B.Sc II** - Series solution of differential equations – Power series method, Definitions of Beta and Gamma functions.  **M.Sc(P**)- Linear integral equations, I.V.P reduced to volterra integral equations.  **M.Sc(F)-** Algebraic Number and Integers : Gaussian integers and its properties, Primes and fundamental theorem. in the ring of Gaussian integers,  **Assignments:**  **B.Sc I-**Question based on divisibility  **B.Sc II-** Question based on power series  **M.Sc(P)**- numerical of volterra integral equation  **M.Sc(F)-**  gaussian integers, prime no. |
| **Week 2**  **B.Sc I-**Primes, Fundamental Theorem of Arithemetic. Linear Congruences, Fermat’s theorem.  **B.Sc II -** Definitions of Beta and Gamma functions, Bessel equation and its solution.  **M.Sc(P)-** Methods of successive substitution and successive approximation to solve Volterra integral equations of second kind  **M.Sc(F)-**Integers and fundamental theorem in Q() where 3 = 1, Algebraic fields, Primitive polynomials.  **Assignments:**  **B.Sc I-**Question based on linear congruences  **B.Sc II**- Numerical of bessels equations  **M.Sc(P)**- Numerical based on approximation and substitution  **M.ScF)-** algebraic fields |
| **Week 3**  **B.Sc I-**Wilson’s theorem and its converse. Linear Diophanatine equations in two variables  **B.Sc II-** Bessel functions and their properties-Convergence, recurrence, Relations and generating functions,  **M.Sc(P)-** Iterated kernels and Neumann series for Volterra equations. Resolvent kernel as a series. Laplace transform method for a difference kernel.  **M.Sc(F)-** The general quadratic field Q(m), Units of Q(2), Fields in which fundamental theorem is false  **Assignments:**  **B.Sc I-**Question of linear diophantine equations  **B.Sc II-**  Numerical of bessels equations  **M.Sc(P)-** Numerical of resolvent kernel  **M.Sc(F)-**  quadratic fields |
| **Week 4**  **B.Sc I-**Complete residue system and reduced residue system modulo m. Euler’s Ø function  **B.Sc II-** Orthogonality of Bessel functions, Legendre and Hermite differentials equations and their solutions  **M.Sc(P)-** Solution of a Volterra integral equation of the first kind, Boundary value problems reduced to Fredholm integral equations  , Methods of successive approximation and successive substitution to solve Fredholm equations of second kind  **M.Sc(F)-** Real and complex Euclidean fields, Fermat theorem in the ring of Gaussian integers, Primes of Q(2) and Q(5).  **Assignments:**  **B.Sc I-**Definition of CRS and RRS  **B.Sc II-**Numerical of legendre and hermite differential equation  **M.Sc(P)-** Numerical of Boundary value problems  **M.Sc(F)-F**ermat theorem |
| **Week 5**  **B.Sc I-**Euler’s generalization of Fermat’s theorem. Chinese Remainder Theorem. Quadratic residues.  **B.Sc II-** Legendre and Hermite  functions and their properties-Recurrence Relations and generating functions.  **M.Sc(P)-** Iterated kernels and Neumann series for Fredholm equations. Resolvent kernel as a sum of  series. Fredholm resolvent kernel as a ratio of two series. Fredholm equations with separable kernels  **M.Sc(F)-**Countability of set of algebraic numbers, Liouville theorem and generalizations, Transcendental numbers,  **Assignments:**  **B.Sc I-** Numericals of CRT  **B.Sc II-** Numerical of legendre and hermite differential equation  **M.Sc(P)-** Resolvent kernel for fredholm equations  **M.Sc(F)-**  countability and transcedental no. |
| **Week 6**  **B.Sc I-**Legendre symbols. Lemma of Gauss; Gauss reciprocity law. Greatest integer function [x].  **B.Sc II-** Orhogonality of Legendre and Hermite polynomials. Rodrigues’ Formula for Legendre & Hermite Polynomials,  Laplace Integral Representation of Legendre polynomial  **M.Sc(P)-** Approximation of a kernel by a separable kernel, Fredholm Alternative, Non homonogenous Fredholm  equations with degenerate kernels, Green function  **M.Sc(F)-**Algebraic number fields, Liouville theorem of primitive elements, Ring of algebraic integers, Theorem ofprimitive elements  **Assignments:**  **B.Sc I-** Question of greatest integer function  **B.Sc II-** Numerical of legendre and hermite differential equation  **M.Sc(P)-** Numerical of Non homogrneous fredholm equations  **M.Sc(F)** algebraic no. and primitive element |
| **Week 7**  **B.Sc I-**The number of divisors and the sum of divisors of a natural number n (The functions d(n) and (n)).  **B,Sc II-** Laplace Transforms – Existence theorem for Laplace transforms, Linearity of the Laplace  transforms, Shifting theorems, Laplace transforms of derivatives and integrals.  **M.Sc(P)-** Use of method of variation of parameters to construct the Green function for a nonhomogeneous linear second order boundary value problem, Basic four properties of the Green function  **M.Sc(F)-** Norm and trace of an algebraic number, Non degeneracy of bilinear pairing, Existence of an integral  basis.  **Assignments:**  **B.Sc I-**Question based on d(n) and sum of divisior  **B.Sc II-** Numerical of laplace transform  **M.Sc(P)-** Numerical of green's function  **M.Sc(F)-** non degenracy, norm and trace |
| **Week 8**  **B.Sc I-**Moebius function and Moebius inversion formula  **B.Sc II-** Differentiation and integration of Laplace transforms, Convolution theorem, Inverse Laplace transforms  **M.Sc(P)-** Alternate procedure for construction of the Green function by using its basic four properties, Reduction  of a boundary value problem to a Fredholm integral equation with kernel as Green function.  **M.Sc(F)-** Discriminant of an algebraic number field, Ideals in the ring of algebraic integers  **Assignments:**  **B.Sc I-** Definition of moebius function  **B.Sc II-** Differentiation and integration of Laplace transforms  **M.Sc(P)-** Numerical based onReduction of a boundary value problem to a Fredholm integral equation with kernel  as Green function.  **M.Sc(F)** ideal and algebraic no. |
| **Week 9**  **B.Sc I-** Holi break  **B.Sc II-** Holi break  **M.Sc(P)-**Holi break  **M.Sc(F)-** Holi break  **Assignments:**  **B.Sc I- Holidays**  **B.Sc II- Holidays**  **M.Sc(P)-Holidays**  **M.Sc(F)-Holidays** |
| **Week 10**  **B.Sc I-**De Moivre’s Theorem and its Applications**.**  **B.Sc II-** convolution theorem, Inverse Laplace transforms of derivatives and integrals, solution of  ordinary differential equations using Laplace transform.  **M.Sc(P)-** Hilbert Schmidt theory for symmetric kernels, Motivating problems of calculus of variations, Shortest distance,Minimum surface of resolution, Brachistochrone problem, Isoperimetric problem  **M.Sc(F)-**Explicit construction of integral basis, Sign of the discriminant, Cyclotomic fields, Calculation for  quadratic and cubic cases  **Assignments:**  **B.Sc I-** Numerical based on De Moivre,s theorem  **B.Sc II-** Numerical based on inverse laplace transform  **M.Sc(P)-** Numerical of isoperimetric problem  **M.Sc(F)-** cyclotomic field |
| **Week 11**  **B.Sc I-** Expansion of trigonometrical functions, Direct circular and hyperbolic functions and their properties.  **B.Sc II-** Fourier transforms: Linearity property, Shifting, Modulation, Convolution Theorem  **M.Sc(P)-** Geodesic. Fundamental lemma of calculus of variations  **M.Sc(F)-** Integral closure, Noetherian ring, Characterizing Dedekind domains, Fractional ideals and unique factorization.  **Assignments:**  **B.Sc I-** Numerical of trignometric and hyperbolic function  **B.Sc II-** Numerical of fourier transform  **M.Sc(P)-** Basic terms in geodesic  **M.Sc(F)-** notherian ring |
| **Week 12**  **B.Sc I-**Inverse circular and hyperbolic functions and their properties. Logarithm of a complex quantity.  **B.Sc II-** Fourier Transform of Derivatives, Relations between Fourier transform and Laplace  transform,  **M.Sc(P)-**Euler equation for one dependant function and its generalization to 'n' dependant functions and to higher  order derivatives.  **M.Sc(F)-** G.C.D. and L.C.M. of ideals, Chinese remainder theorem, Dedekind theorem, Ramified and unramified extensions.  **Assignment:**  **B.Sc I-** Numerical of logarithm of complex quantity  **B.Sc II-** Numerical of fourier transform  **M.Sc(P)-** Numerical of euler's equations  **M.Sc(F)-** Numerical of CRT |
| **Week 13**  **B.Sc I-** Gregory’s series. Summation of Trigonometry series.  **B.Sc II-** Parseval’s identity for Fourier transforms, solution of differential Equations  using Fourier Transforms.  **M.Sc(P)-** Conditional extremum under geometric constraints and under integral constraints  **M.Sc(F)-** Different of an algebraic number field, Factorization in the ring of algebraic integers.  **Assignments:**  **B.Sc I-** Numerical of summation of trignometry series  **B.Sc II-** Numerical of fourier transform  **M.Sc(P)-**Numerical of euler's equations  **M.Sc(F)-** ideal and algebraic no. |
| **Week 14**  **B.Sc I-** Revision  **B.Sc II-** Revision  **M.Sc(P)-** Revision  **M.Sc(F)**-Revision  **Assignments:**  **B.Sc I-**Last year question paper  **B.Sc II-** Last year question paper  **M.Sc(P)-** Last year question paper  **M.Sc(F)-** Last year question paper |

**Name of the Assistant / Associate Professor:** Ms. Meetu Manocha

**Subject Lesson Plan: (January01, 2018 to April 12, 2018)**

**Month: January**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| January  Week- 1 | * M.Sc.4th SEM   (Advanced discrete mathematics) | Definition and types of graphs ,walk, path and circuit. | Oral test of definitions |
| * B.Sc.6thSEM   (Linear Algebra) | Vector Spaces and Subspaces | Written Test |
| * B.C.A.2nd  SEM (Elements of mathematical foundations of computer science) | Graph Theory | Class test of types of graphs. |
| * B.Com.2nd SEM (Business mathematics) | Algebra of matrices | Oral test of definitions |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| January  Week- 2 | * M.Sc.4th SEM   (Advanced discrete mathematics) | Connected and disconnected graphs | Oral test of definitions |
| * B.Sc.6thSEM   (Linear Algebra) | Basis of vector spaces | Written Test |
| * B.C.A.2nd  SEM (Elements of mathematical foundations of computer science) | Adjacent and incidence matrices, path circuit | Class test of path circuits |
| * B.Com.2nd SEM (Business mathematics) | Determinants |  |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| January  Week- 3 | * M.Sc.4th SEM   (Advanced discrete mathematics) | Applications and operations of graph | Written test |
| * B.Sc.6thSEM   (Linear Algebra) | Dimension of vector spaces |  |
| * B.C.A.2nd  SEM (Elements of mathematical foundations of computer science) | Trees, minimum distance trees | Oral test of basics |
| * B.Com.2nd SEM (Business mathematics) | Determinants (to be cntd) | Board test |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| January  Week- 4 | * M.Sc.4th SEM   (Advanced discrete mathematics) | Graph representation, isomorphism of graphs | Board test |
| * B.Sc.6thSEM   (Linear Algebra) | Quotient Space | Written Test |
| * B.C.A.2nd  SEM (Elements of mathematical foundations of computer science) | Minimum weight and minimum distance spanning trees | Class test |
| * B.Com.2nd SEM (Business mathematics) | Adjoint and inverse of a matrix | Making assignments |

**Month: February**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| February  Week- 1 | * M.Sc.4th SEM   (Advanced discrete mathematics) | Euler and Hamiltonian path, shortest path in a weighted graph |  |
| * B.Sc.6thSEM   (Linear Algebra) | Linear Transformation | Board presentation |
| * B.C.A.2nd  SEM (Elements of mathematical foundations of computer science) | Conversion of binary to decimal and decimal to binary | Board presentation |
| * B.Com.2nd SEM (Business mathematics) | Differentiation |  |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| February  Week- 2 | * M.Sc.4th SEM   (Advanced discrete mathematics) | The travelling sales person problem, planer graphs |  |
| * B.Sc.6thSEM   (Linear Algebra) | Rank and Nullity | Written test |
| * B.C.A.2nd  SEM (Elements of mathematical foundations of computer science) | Sorting |  |
| * B.Com.2nd SEM (Business mathematics) | Differentiation (To be cntd) | Written test |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| February  Week- 3 | * M.Sc.4th SEM   (Advanced discrete mathematics) | Kuratowski’s theorm, graph colouring | Class test |
| * B.Sc.6thSEM   (Linear Algebra) | Algebra of Linear transformation | Written Test |
| * B.C.A.2nd  SEM (Elements of mathematical foundations of computer science) | Algorithm and complexity of algorithm |  |
| * B.Com.2nd SEM (Business mathematics) | Application of derivatives |  |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| February  Week- 4 | * M.Sc.4th SEM   (Advanced discrete mathematics) | Directed graph, trees, rooted label trees |  |
| * B.Sc.6thSEM   (Linear Algebra) | Matrix of linear transformation |  |
| * B.C.A.2nd  SEM (Elements of mathematical foundations of computer science) | Frequency distribution |  |
| * B.Com.2nd SEM (Business mathematics) | Application of derivatives (to be cntd) |  |

**Month: March**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| March  Week- 2 | * M.Sc.4th SEM   (Advanced discrete mathematics) | Prefix code, binary search tree, tree traversal | Making assignments |
| * B.Sc.6thSEM   (Linear Algebra) | Dual Space | Written Test |
| * B.C.A.2nd  SEM (Elements of mathematical foundations of computer science) | Measure of central tendency | Class test of mean, median and mode |
| * B.Com.2nd SEM (Business mathematics) | Compound interest |  |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| March  Week- 3 | * M.Sc.4th SEM   (Advanced discrete mathematics) | Spanning trees, cut set, minimal panning trees | Oral test |
| * B.Sc.6thSEM   (Linear Algebra) | Eigen values and Eigen vectors | Written Test |
| * B.C.A.2nd  SEM (Elements of mathematical foundations of computer science) | Measure of dispersion, correlation and regression |  |
| * B.Com.2nd SEM (Business mathematics) | Annuities |  |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| March  Week- 4 | * M.Sc.4th SEM   (Advanced discrete mathematics) | Kruskal and Prim algorithm |  |
| * B.Sc.6thSEM   (Linear Algebra) | Eigen values and Eigen vectors  (to be cntd) | Written Test |
| * B.C.A.2nd  SEM (Elements of mathematical foundations of computer science) | Recursion and recurrence relation |  |
| * B.Com.2nd SEM (Business mathematics) | Ratio and Proportion | Written test |

**Month: April**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| April Week- 1 | * M.Sc.4th SEM   (Advanced discrete mathematics) | Decision trees and sorting methods |  |
| * B.Sc.6thSEM   (Linear Algebra) | Inner product Spaces | Written Test |
| * B.C.A.2nd  SEM (Elements of mathematical foundations of computer science) | Number theory | Making assignments |
| * B.Com.2nd SEM (Business mathematics) | Ratio and Proportion (to be cntd) |  |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| April  Week- 2 | * M.Sc.4th SEM   (Advanced discrete mathematics) | Revision |  |
| * B.Sc.6thSEM   (Linear Algebra) | Linear operators on inner product spaces |  |
| * B.C.A.2nd  SEM (Elements of mathematical foundations of computer science) | Revision |  |
| * B.Com.2nd SEM (Business mathematics) | Percentage and profit loss |  |

**Name of the Assistant / Associate Professor:** Ms. Anju Paliwal

**Classes and Section:** M.Sc.(F) Mathematics , M.Sc.(P) Mathematics

B.Sc. 2nd Programming in C &Numerical Method (Section B) and B.COM 1st (Section B)

**Subject Lesson Plan: (January 2018 to April 2018)**

**Month: January.**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| January  Week- 1 | * M.Sc(F) Mathematics | Vorticity in two dimensions, Circular and rectilinear vortices |
| * M.Sc(P) Mathematics | Set function,Entuitive idea of measure,Elementary properties of measure |
| * B.Sc 2nd   Programming in C & Numerical Method | Computers:A General Introduction ,Algorithms,Flowchart |
| * B.COM 1st | Algebra of matrices |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| January  Week- 2 | * M.Sc(F) Mathematics | Vortex doublet,Irrational motion due to vortices, single and infinite row of vortices |
| * M.Sc(P) Mathematics | Measureable sets and their fundamental properties |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Introduction to C,C-Tokens,Keywords |
| * B.COM 1st | determinants |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| January  Week- 3 | * M.Sc(F) Mathematics | Kasman vertox street,wave motion in a gas,speed of sound in a gas,equation of motion of a gas |
| * M.Sc(P) Mathematics | Lebesgue measure of a set of real number |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Data-types,Qualifiers,New line character |
| * B.COM 1st | deterimants (to be contd.) |
| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| January  Week- 4 | * M.Sc(F) Mathematics | Sub sonic and super sonic flows, isentropic gas flow |
| * M.Sc(P) Mathematics | Borel set  Equivalent formulation of measureable ets in terms of open closed, F-sigma and G-delta sets |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Operators and Expessions |
| * B.COM 1st | Adjoint and inverse of matrics |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| January  Week- 5 | * M.Sc(F) Mathematics | Flow through a nozzle and revision of above topics |
| * M.Sc(P) Mathematics | Non measureable sets and revision of above topics |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Input/Output functions and Revision of Unit-1 |
| * B.COM 1st | Revision of previous topics |

**Month: February, Unit-2**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| February  Week- 1 | * M.Sc(F) Mathematics | Stress components in a real fluid |
| * M.Sc(P) Mathematics | Measureable functions and their equivalent formulation properties of measureable functions |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Decision Control structures:Decision Statements,Logical and conditional statements |
| * B.COM 1st | Differentiation |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| February  Week- 2 | * M.Sc(F) Mathematics | Relation between Cartesian components of stress, Translational motion of fluid element. Rates of strain |
| * M.Sc(P) Mathematics | Approximation of measureable function by sequence of simple function  Measureable function as nearly continues function |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Loops:Implementation of Loops,Switch Statement and case control structures |
| * B.COM 1st | Differentiation( to be contd.) |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| February  Week- 3 | * M.Sc(F) Mathematics | Transformation of rates of strains, Relation between stresses and rates of strain, co-efficient of viscosity |
| * M.Sc(P) Mathematics | Egroll Theorem,Lusin Theorem |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Functions,Recursion,Local and Global variables |
| * B.COM 1st | Application of derivatives |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| February  Week- 4 | * M.Sc(F) Mathematics | laminar flow, Newtonian and non-Newtonian fluids, Navier-Stoke equations of motion. Equations of motion in cylindrical and and spherical polar co-ordinates. |
| * M.Sc(P) Mathematics | Convergense in measure and Fricse theorem |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | The C Preprocessor,Arrays |
| * B.COM 1st | Application of derivatives(to be contd.) |

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| **Month/**  **Week** | **Class & Subject** | **Topics to be covered** |
| February  Week- 5 | * M.Sc(F) Mathematics | Equation of energy. Diffusion of vorticity. Energy dissipation due to viscosity. Equation of state. |
| * M.Sc(P) Mathematics | Almost uniform convergence and revision of above topics |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Arrays and Revision of Unit-2 |
| * B.COM 1st | Compound Interest |

**Month: March**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| March  Week- 1 | * M.Sc(F) Mathematics | Holi Break |
| * M.Sc(P) Mathematics | Holi Break |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Holi Break |
| * B.COM 1st | Holi Break |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| March  Week- 2 | * M.Sc(F) Mathematics | Plane Poiseuille and Couette flows between two parallel plates. Theory of lubrication |
| * M.Sc(P) Mathematics | Short comings of ricmann integral, Lebesgue integral of a bounded function over a set of finite measure and its properties |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Stings:Character data type,Standard string handling functions,Arithmetic operations on characters |
| * B.COM 1st | Compound Interest |
| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| March  Week- 3 | * M.Sc(F) Mathematics | Theory of lubrication. HagenPoiseuille flow. Steady flow between co-axial circular cylinders and concentric rotating cylinders |
| * M.Sc(P) Mathematics | Lebesgue integral as generalisation of main integral |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Structures and Union:Definition,use of structures in arrays and arrays in structures |
| * B.COM 1st | Annuities |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| March  Week- 4 | * M.Sc(F) Mathematics | Flow through tubes of uniform elliptic and equilateral triangular cross-section. Unsteady flow over a flat plate |
| * M.Sc(P) Mathematics | Lebesgue theorem regarding points of discontinuities of remann integral function.  Integral of non negative functions |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Pointers:Pointers data type,Pointers and arrays,Pointers and functions  Files in C |
| * B.COM 1st | Ratio and proportion |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| March  Week- 5 | * M.Sc(F) Mathematics | Steady flow past a fixed sphere. Flow in convergent and divergent chennals |
| * M.Sc(P) Mathematics | Fatoulemma,monoton convergens theorem,general lebesgue integral,Lebesgue convergense theorem |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Solution of algebraic and Transcendental equations:Bisection method,Regula-Falsi,Secant,Newton-Raphson's method. |
| * B.COM 1st | Ratio and proportion |

**Month: April**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| April  Week- 1 | * M.Sc(F) Mathematics | Dynamical similarity. Inspection analysis. Non-dimensional numbers. Dimensional analysis. Buckingham π-theorem and its application. Physical importance of non- dimensional parameters. |
| * M.Sc(P) Mathematics | Vitali covering Lemma  Differentiation of monotonic functions  Function of bounded variations and its represntation as difference of monotonic functions |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Newton’s iterative method,Order of convergence of different methods  Simultaneous linear algebraic equations:Gauss-elimination,Gauss-Jordan method  LU decomposition,Crout's method |
| * B.COM 1st | Ratio and proportion |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| April  Week-2 | * M.Sc(F) Mathematics | Prandtl boundary layer. Boundary layer equation in two-dimensions. The boundary layer on a flat plate (Blasius solution). Characteristic boundary layer parameters. Karman integral conditions. Karman-Pohlhausen method. |
| * M.Sc(P) Mathematics | Differentiation of indefinite integral  Fundamental theorem of calculus  Absolutely continuos functions and their properties. |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Cholesky decomposition,Iterative method,Jacobi's method,Gauss-Seidal's method  Relaxation method |
| * B.COM 1st | Percentage and profit and loss |

**Name of the Assistant / Associate Professor:** Ms. Teena Dhingra

**Class and Section**: B. Sc Sem-2 and M. Sc (Mathematics)Sem-2

**Subject Lesson Plan: (January 2018 to April 2018)**

**Month: January**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| January  Week- 1 | * B. Sc -2nd sem   (Number Theory & Trigonometry) | Divisibility | Oral test of definitions |
| * M.Sc.(Mathematics) 2ND SEM.   (Theory of Field Extensions) | lntroductory part of syllabus Extension of field; Elementary properties | Oral test of definitions |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| January  Week- 2 | * B.Sc.2nd Sem   (Number Theory &Trigonometry) | L. C. M  & G. C. D; primes, Fundamental Theorem of Arithmetic | Assignment -To find  L. C. M & G. C. D |
| * M.Sc.(Mathematics) 2ND SEM.   (Theory of Field Extensions) | Simple Extensions, Algebraic and transcendental Extensions | written test on algebraic extensions |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| January  Week- 3 | * B.Sc.2nd Sem   ( Number Theory & Trigonometry) | Linear Congruences | Written test and assignments for solving linear congruences |
| * M.Sc.(Mathematics) 2ND SEM.   (Theory of Field Extensions) | Factorization of polynomials, Splitting fields | Exercises on Splitting fields |
| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| January  Week- 4 | B.Sc.2nd Sem  ( Number Theory & Trigonometry) | Linear Diophantine equation in two variables | Assignment on Linear Diophantine equation |
| M.Sc.(Mathematics) 2ND SEM.  (Theory of Field Extensions) | Algebraically Closed fields, separable extensions, perfect fields | Oral test of extensions concepts |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| January  Week- 5 | B.Sc.2nd Sem  (Number Theory &Trigonometry) | Format's theorem, Wilson's theorem and it's converse | Written Test of important theorems |
| * M.Sc.(Mathematics) 2ND SEM.   ( Theory of Field Extensions) | Automorphism of fields; Monomorphisms and their independence | Written test of concepts of extensions |

**Month: February**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| February  Week- 1 | * B.Sc.2nd Sem   ( Number Theory and Trigonometry) | Chinese Remainder Theorem, Euler phi Function, Euler's Generalization of Format's theorem | Oral test of definitions |
| * M.Sc.(Mathematics) 2ND SEM.   (Theory of field Extensions ) | Fixed fields, Normal extensions | Written test of normal extensions |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| February  Week- 2 | * B.Sc.2nd Sem   (Number Theory and Trigonometry) | Complete Residue System and Reduced Residue system modulo m, Greatest integer function | Written test |
| * M.Sc.(Mathematics) 2ND SEM.   (Theory of Field Extensions ) | Normal closure of an extension,norms and traces | written test |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| February  Week- 3 | * B.Sc.. 2nd SEM   (Number Theory & Trigonometry) | The number of divisors and the sum of divisors of a natural number n(Moebius Function and Moebius Inversion Formula) | Assignment on divisors function &Sigma function |
| * M.Sc.(Mathematics) 2ND SEM.   (Theory of Field Extensions) | The Fundamental theorem of Galois theory | Oral test of definition and Board presentations |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| February  Week- 4 | * B.Sc.. 2nd SEM.   ( Number Theory & Trigonometry) | Quadratic Residues, Legendre symbols, Lemma of Gauss | Written test of Euler's function and its theorem |
| * M.Sc.(Mathematics) 2ND SEM.   (Theory of Field Extensions ) | Normal Basis, Galois fields | Assignment on Galois fields |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| February  Week- 5 | * B.Sc.2nd SEM.   ( Number Theory & Trigonometry ) | Gauss Reciprocity law | Oral test of definitions |
| * M.Sc. (Mathematics) 2ND SEM.   (Theory of Field Extensions ) | Cyclotomic extensions | Board Presentation |

**Month: March**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| March  Week- 1 | * B.Sc.2nd SEM.   ( Number Theory &Trigonometry ) | Holi Break | ----------------- |
| * M.Sc. (Mathematics) 2ND SEM.   (Theory of Field Extensions ) | Holi Break | ----------------- |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| March  Week- 2 | * B.Sc.2nd SEM.   ( Number Theory & Trigonometry ) | De-Moivre's theorem and its applications | Assignment on De-moivre's theorem |
| * M.Sc.(Mathematics) 2ND SEM.   (Theory Of Field Extensions ) | cyclotomic polynomials, cyclotomic extensions of rational number field | Written test on cyclotomic |
| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/ Tests** |
| March  Week- 3 | * B.Sc.2nd SEM.   ( Number Theory &Trigonometry ) | Expansion of trigonometric functions | Written test |
| * M.Sc.(Mathematics) 2ND SEM.   (Theory of Field Extensions ) | Cyclic extension,Wedderburn theorem | Board presentation |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| March  Week- 4 | * B.Sc.2ndSEM.   ( Number Theory & Trigonometry ) | Direct circular and hyperbolic functions and their properties | Group discussion on properties of circular and hyperbolic function |
| * M.Sc.(Mathematics) 2ND SEM.   (Theory of Field Extensions ) | Ruler and Compass Construction | Written test |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| March  Week- 5 | * B.Sc.2nd SEM.   ( Number Theory &Trigonometry ) | Inverse circular and hyperbolic functions and their properties | written test |
| * M.Sc.(Mathematics) 2ND SEM.   (Theory of Field Extensions ) | Solutions by radicals, Extension by radicals | Assignment on ruler and compass construction |

**Month: April**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/ Tests** |
| April  Week- 1 | * B.Sc.2nd SEM.   (Number Theory &Trigonometry ) | logarithm of a complex quantity | Practice of numericals |
| * M.Sc.(Mathematics) 2ND SEM.   (Theory of Field Extensions ) | Generic polynomial, Algebrically independent sets | Written test |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| April  Week-2 | * B.Sc.2nd SEM.   ( Number Theory &Trigonometry ) | Gregory 's series, Summation of Trigonometric series | Written test from entire syllabus |
| * M.Sc. (Mathematics) 2ND SEM.   (Theory of Field Extensions ) | Insolvability of the general polynomial of degree n>=5 by radical s  Revision of syllabus | Written test from entire syllabus |

**Name of the Assistant / Associate Professor:** Ms.Sapna Malik

**Classes and Section:** M.Sc.(F) Mathematics , BBA 1st Business Statistics, B.A and B.Sc 2ndProgramming in C &Numerical Method(Section A   
 & Computer Science )

**Subject Lesson Plan: (January 2018 to April 2018)**

**Month: January**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| January  Week- 1 | * M.Sc(F) Mathematics | Hilbert Space:Inner Product Space,HilbertSpace,SchwarzInequality,Hilbert Space as  Normed Linear Space |
| * BBA 2nd Business Statistics | Statistics: Meaning,Evolution,Scope,Limitations and applications |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Computers:A General Introduction ,Algorithms,Flowchart |
| * Practicals in C | Program to generate first n prime numbers |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| January  Week- 2 | * M.Sc(F) Mathematics | Convex sets in Hilbert Space,ProjectionTheorem,Orthonormal sets |
| * BBA 2nd Business Statistics | Data classification and Tabulation:Meaning,Objectives and types of classification,Formation of frequency distribution |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Introduction to C,C-Tokens,Keywords |
| * Practicals in C | Program to Calculate Compound Interest |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| January  Week- 3 | * M.Sc(F) Mathematics | Separability,Total Orthonormal sets,Bessel'sInequality,Parseval Identity |
| * BBA 2nd Business Statistics | Role of tabulation,Parts ,types and construction of tables |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Data-types,Qualifiers,New line character |
| * Practicals in C | Program to Solve a quadratic equation |
| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| January  Week- 4 | * M.Sc(F) Mathematics | Conjugate of a Hilbert Space,Riesz-Representation Theorem in Hilbert Space  Adjoint of an operator on a Hilbert Space |
| * BBA 2nd Business Statistics | Graphical Representation of Data:Significance,types of diagrams |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Operators and Expessions |
| * Practicals in C | Program to swap two numbers |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| January  Week- 5 | * M.Sc(F) Mathematics | Refexivityof a Hilbert Space,Self-adjoint operator |
| * BBA 2nd Business Statistics | Construction of diagrams and graphs |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Input/Output functions and Revision of Unit-1 |
| * Practicals in C | Program for pattern matching of two strings |

**Month: February, Unit-2**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| February  Week- 1 | * M.Sc(F) Mathematics | Positive Operator and Product of Positive Operators |
| * BBA 2nd Business Statistics | Measures of Central Tendency:Meaning and its Objectives,Different Measures |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Decision Control structures:DecisionStatements,Logical and conditional statements |
| * Practicals in C | Program to reverse a string character by character |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| February  Week- 2 | * M.Sc(F) Mathematics | Projection Operators and Product of Projections |
| * BBA 2nd Business Statistics | Characteristics,applications and limitations of different measures |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Loops:Implementation of Loops,Switch Statement and case control structures |
| * Practicals in C | Program to calculate the area of a circle using function call by refrence |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| February  Week- 3 | * M.Sc(F) Mathematics | Sum and difference of Projections ,Normal and Unitary Operators,  Projections on Hilbert Space |
| * BBA 2nd Business Statistics | Measures of variations:Range,Quartiledeviation,Mean and standards deviation |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Functions,Recursion,Local and Global variables |
| * Practicals in C | Program to generate first n fibonacci terms using recursion |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| February  Week- 4 | * M.Sc(F) Mathematics | Spectral theorem on finite dimension space and Convex functions |
| * BBA 2nd Business Statistics | Coefficient of variation |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | The C Preprocessor,Arrays |
| * Practicals in C | Program to transpose of a matrix |

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| **Month/**  **Week** | **Class & Subject** | **Topics to be covered** |
| February  Week- 5 | * M.Sc(F) Mathematics | Jensen Inequality,Measure Space |
| * BBA 2nd Business Statistics | Skewness:Measures of skewness |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Arrays and Revision of Unit-2 |
| * Practicals in C | Program to Multiply two matrices |

**Month: March**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| March  Week- 1 | * M.Sc(F) Mathematics | Holi Break |
| * BBA 2nd Business Statistics | Holi Break |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Holi Break |
| * Practicals in C | Holi Break |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| March  Week- 2 | * M.Sc(F) Mathematics | Generalised FatouLemma,Measure and outer measure |
| * BBA 2nd Business Statistics | Meaning and types of correlation:positive,negative,  simple,partial and multiple correlation |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Stings:Character data type,Standard string handling functions,Arithmeticoperations on characters |
| * Practicals in C | Practice of programs |
| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| March  Week- 3 | * M.Sc(F) Mathematics | Extension of a measure,Caratheodoryextension theorem  Signed Measure |
| * BBA 2nd Business Statistics | Methods of studying correlation,Properties of correlation coefficient  Rank correlation |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Structures and Union:Definition,use of structures in arrays and arrays in structures |
| * Practicals in C | Practice |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| March  Week- 4 | * M.Sc(F) Mathematics | Hahn-Decomposition theorem and Jordan Decomposition theorem ,Mutually  Signed Measure |
| * BBA 2nd Business Statistics | Coefficient of determination, Lines of regression  Coefficient of regression,Standard error of estimate |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Pointers:Pointers data type,Pointers and arrays,Pointers and functions  Files in C |
| * Practicals in C | Program to swap two numbers using pointers |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| March  Week- 5 | * M.Sc(F) Mathematics | Radon-Nikodyntheorem,Lebesguedecomposition,Lebesgue-Stieltjes integral |
| * BBA 2nd Business Statistics | Index number and their uses in business,Construction of simple and weighted price,quantity and value index numbers |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Solution of algebraic and Transcendental equations:Bisectionmethod,Regula-Falsi,Secant,Newton-Raphson's method |
| * Practicals in C | Program based on Bisection And Regula-Falsimethod |

**Month: April**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| April  Week- 1 | * M.Sc(F) Mathematics | Product Measures,Fubinitheorem,Baire sets |
| * BBA 2nd Business Statistics | Test for an ideal index numbers,components of time series,use of time series in business and its limitations |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Newton’s iterative method,Order of convergence of different methods  Simultaneous linear algebraic equations:Gauss-elimination,Gauss-Jordan method  LU decomposition,Crout's method |
| * Practicals in C | Program based on Newton-Raphson and Gauss Eliminationmethod |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| April  Week-2 | * M.Sc(F) Mathematics | BaireMeasures,continuous function with compact support |
| * BBA 2nd Business Statistics | Calculating growth rate in times series |
| * B.A and B.Sc 2nd   Programming in C & Numerical Method | Choleskydecomposition,Iterativemethod,Jacobi'smethod,Gauss-Seidal's method  Relaxation method |
| * Practicals in C | Program based on Gauss-Siedel,Gauss-Jordan method |

**Name of the Assistant / Associate Professor:** Ms. Priyanka

**Department :** Mathematics

**Subject Lesson Plan: (January01, 2018 to April 12, 2018)**

**Month: January**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| January  Week- 1 | * B.Sc.4th SEM   (SPECIAL FUNCTION AND INTEGRAL TRANSFORMS) | POWER SERIES METHOD, DEFINITION OF BETA AND GAMMA FUNCTIONS | Oral test |
| * B.Sc.6thSEM   (Linear Algebra) | Vector Spaces and Subspaces | Written Test |
| * B.Sc..4th SEM   (PRACTICAL OF PROGRAMING IN “C”) | Program to calculate C.I | Assignment of program |
| * B.Sc.6thSEM   (PRACTICAL OF NUMERICAL ANALYSIS) | Program to demonstrate newton forward interpolation formula | Formula revision |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| January  Week- 2 | * B.Sc.4th SEM   (SPECIAL FUNCTION AND INTEGRAL TRANSFORMS) | Bessel function and their property | Class discussion |
| * B.Sc.6thSEM   (Linear Algebra) | Basis of vector spaces | Written Test |
| * B.Sc..4th SEM   (PRACTICAL OF PROGRAMING IN “C”) | Solve a quadratic equation | Assignment of program |
| * B.Sc.6thSEM   (PRACTICAL OF NUMERICAL ANALYSIS) | Flow chart of newton forward |  |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| January  Week- 3 | * B.Sc.4th SEM   (SPECIAL FUNCTION AND INTEGRAL TRANSFORMS) | Recurrence relations and orthogonality of Bessel functions | Written test |
| * B.Sc.6thSEM   (Linear Algebra) | Dimension of vector spaces |  |
| * B.Sc..4th SEM   (PRACTICAL OF PROGRAMING IN “C”) | Swap of two numbers and definition of pointers | Written test |
| * B.Sc.6thSEM   (PRACTICAL OF NUMERICAL ANALYSIS) | Program to demonstrate newton backward interpolation formula | Written test |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| January  Week- 4 | * B.Sc.4th SEM   (SPECIAL FUNCTION AND INTEGRAL TRANSFORMS) | Legendre and hermite eq. & solutions | Board test |
| * B.Sc.6thSEM   (Linear Algebra) | Quotient Space | Written Test |
| * B.Sc..4th SEM   (PRACTICAL OF PROGRAMING IN “C”) | Program how to match two strings |  |
| * B.Sc.6thSEM   (PRACTICAL OF NUMERICAL ANALYSIS) | Cntd.program newton interpolation | Making assignments |

**Month: February**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| February  Week- 1 | * B.Sc.4th SEM   (SPECIAL FUNCTION AND INTEGRAL TRANSFORMS) | Recurrence relations and generating functions |  |
| B.Sc.6thSEM  (Linear Algebra) | Linear Transformation | Board presentation |
| * B.Sc..4th SEM   (PRACTICAL OF PROGRAMING IN “C”) | Generate first n Fibonacci terms | presentation |
| * B.Sc.6thSEM   (PRACTICAL OF NUMERICAL ANALYSIS) | Lagrange interpolation formula | Presentation |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| February  Week- 2 | * B.Sc.4th SEM   (SPECIAL FUNCTION AND INTEGRAL TRANSFORMS) | Rodrigues formula for legender andhermite polynomials | Formula test |
| * B.Sc.6thSEM   (Linear Algebra) | Rank and Nullity | Written test |
| * B.Sc..4th SEM   (PRACTICAL OF PROGRAMING IN “C”) | Transpose of matrix | Assignment |
| * B.Sc.6thSEM   (PRACTICAL OF NUMERICAL ANALYSIS) | Lagrange interpolation formula contd. | assignment |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| February  Week- 3 | * B.Sc.4th SEM   (SPECIAL FUNCTION AND INTEGRAL TRANSFORMS) | Laplace transformation existence theorem and linearity | Class test |
| * B.Sc.6thSEM   (Linear Algebra) | Algebra of Linear transformation | Written Test |
| * B.Sc..4th SEM   (PRACTICAL OF PROGRAMING IN “C”) | Revision of practicals in c | Written test |
| * B.Sc.6thSEM   (PRACTICAL OF NUMERICAL ANALYSIS) | Trapezoidal rule | Written test |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| February  Week- 4 | * B.Sc.4th SEM   (SPECIAL FUNCTION AND INTEGRAL TRANSFORMS) | Shifting theorem |  |
| * B.Sc.6thSEM   (Linear Algebra) | Matrix of linear transformation | Assignment |
| * B.Sc..4th SEM   (PRACTICAL OF PROGRAMING IN “C”) | Bisection method |  |
| * B.Sc.6thSEM   (PRACTICAL OF NUMERICAL ANALYSIS) | Simpson 1/3 rule |  |

**Month – March**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| March  Week- 1 | * B.Sc.4th SEM   (SPECIAL FUNCTION AND INTEGRAL TRANSFORMS) | Differentiation and integration of laplace | Board test |
| * B.Sc.6thSEM   (Linear Algebra) | Dual Space | Written Test |
| * B.Sc..4th SEM   (PRACTICAL OF PROGRAMING IN “C”) | Regula falsi method | Assignment |
| * B.Sc.6thSEM   (PRACTICAL OF NUMERICAL ANALYSIS) | Simpson 3/8 rule | Assignment |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| March  Week- 2 | * B.Sc.4th SEM   (SPECIAL FUNCTION AND INTEGRAL TRANSFORMS) | Convolution theorem and inverse laplace transformation | Revision test |
| * B.Sc.6thSEM   (Linear Algebra) | Dual Space | Written Test |
| * B.Sc..4th SEM   (PRACTICAL OF PROGRAMING IN “C”) | Newton raphson method | Presentation |
| * B.Sc.6thSEM   (PRACTICAL OF NUMERICAL ANALYSIS) | Compound interest | Presentation |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| March  Week- 3 | * B.Sc.4th SEM   (SPECIAL FUNCTION AND INTEGRAL TRANSFORMS) | Fourier transformation | Oral test |
| * B.Sc.6thSEM   (Linear Algebra) | Eigen values and Eigen vectors | Written Test |
| * B.Sc..4th SEM   (PRACTICAL OF PROGRAMING IN “C”) | Gauss Jordan method | presentation |
| * B.Sc.6thSEM   (PRACTICAL OF NUMERICAL ANALYSIS) | Euler’s method |  |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| March  Week- 4 | * B.Sc.4th SEM   (SPECIAL FUNCTION AND INTEGRAL TRANSFORMS) | Relation between fourier and laplace transform | discussion |
| * B.Sc.6thSEM   (Linear Algebra) | Eigen values and Eigen vectors  (to be cntd) | Written Test |
| * B.Sc..4th SEM   (PRACTICAL OF PROGRAMING IN “C”) | Gauss elimination method | assignment |
| * B.Sc.6thSEM   (PRACTICAL OF NUMERICAL ANALYSIS) | Euler modified method | Assignment |

**Month: April**

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| April Week- 1 | * B.Sc.4th SEM   (SPECIAL FUNCTION AND INTEGRAL TRANSFORMS) | Parseval identity and solution of differential equations | assignment |
| * B.Sc.6thSEM   (Linear Algebra) | Inner product Spaces | Written Test |
| * B.Sc..4th SEM   (PRACTICAL OF PROGRAMING IN “C”) | Gauss seidel method | Making assignments |
| * B.Sc.6thSEM   (PRACTICAL OF NUMERICAL ANALYSIS) | Runge kutta fourth order method | Making assignments |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** | **Assignment/Tests** |
| April  Week- 2 | * B.Sc.4th SEM   (SPECIAL FUNCTION AND INTEGRAL TRANSFORMS) | Revision |  |
| * B.Sc.6thSEM   (Linear Algebra) | Linear operators on inner product spaces |  |
| * B.Sc..4th SEM   (PRACTICAL OF PROGRAMING IN “C”) | Revision |  |
| * B.Sc.6thSEM   (PRACTICAL OF NUMERICAL ANALYSIS) | Revision |  |

**Name of Assistant/Associate Professor: Rajni**

**Classes and Subjects :-** B.sc. I Non. Med.( Vector Calculus),B.sc. I Computer Science( Vector Calculus), B.sc. III(Numerical   
 Analysis),M.sc. (P)(Operations research and technique)

**Subject Lesson Plan: 14 weeks (from January 2018 to April 2018)**

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| **Week 1:**  **B.Sc I-** Scalar and vector product of three vectors, product of four vectors, Reciprocal vectors.  **B.Sc III** -Finite Differences operators and their relations. Finding the missing terms and effect of error in  a difference tabular values, Interpolation with equal intervals .  **M.Sc(P**)- Concepts of stochastic processes, Poisson process.  **Assignments:**  **B.Sc I-**Question based on scalar and vector triple product  **B.Sc III-** Question based on finite difference operator |
| **Week 2**  **B.Sc I-** Vector differentiation, Scalar Valued point functions, vector valued point functions  **B.Sc III -**Newton’s forward and Newton’s  backward interpolation formulae.  **M.Sc(P)-** Birth-death process,Basic components of a queuing system.  **Assignments:**  **B.Sc I-**Question based on product of four vectors  **B.Sc II**- Numerical of Newton’s forward and Newton’s  backward interpolation formulae.  **M.Sc(P)**- Numerical based on birth death proces |
| **Week 3**  **B.Sc I-**derivative along a curve, directional derivatives.  **B.Sc III-** Interpolation with unequal intervals: Newton’s divided  difference, Lagrange’s Interpolation formulae, Hermite Formula  **M.Sc(P)-** Steady-state solution of Markovian queuing models  with single and multiple servers  **Assignments:**  **B.Sc I-** Question based on derivative  **B.Sc III-**  Numerical of Interpolation with unequal intervals |
| **Week 4**  **B.Sc I-** Gradient of a scalar point function, geometrical interpretation of grad ****** , character of gradient  as a point function.  **B.Sc III-**Central Differences: Gauss forward and Gauss’s backward interpolation formulae, Sterling,  Bessel Formula.  **M.Sc(P)-** Queuing models, M/M/1, M/M/C, M/M/1/k, M/MC/k .  **Assignments:**  **B.Sc I-** numerical based on gradient of a function  **B.Sc III-**Numerical of Gauss forward and Gauss’s backward interpolation formulae  **M.Sc(P)-** Numerical of queuing model |
| **Week 5**  **B.Sc I-** Divergence and curl of vector point function, characters of Div *f*  and Curl *f* as point function  **B.Sc III-**Probability distribution of random variables, Binomial distribution, Poisson’s distribution.  **M.Sc(P)-**Inventory control models: Economic order quantity(EOQ) model with uniform demand  **Assignments:**  **B.Sc I-** Numericals based on divergence of a vector point function  **B.Sc III-** Numerical of Sterling, Bessel Formula.  **M.Sc(P)-**Numerical of queuing model |
| **Week 6**  **B.Sc I-**Gradient, divergence and curl of sums and product and their  related vector identities.  **B.Sc III-**Normal distribution: Mean, Variance and Fitting.  **M.Sc(P)-** EOQ when shortages are allowed, EOQ with uniform replenishment.  **Assignments:**  **B.Sc I-** Numerical based on curl of a vector point function  **B.Sc III-** Numerical of binomial and poission distribution  **M.Sc(P)-** Numerical of inventory control |
| **Week 7**  **B.Sc I-**Laplacian operator, Orthogonal curvilinear coordinates  **B.Sc III-** Numerical Differentiation: Derivative of a function using interpolation formulae  **M.Sc(P)-**Inventory control with price breaks.  **Assignments:**  **B.Sc I-**Question based on laplacian operator  **B.Sc III-** Numerical of normal distribution  **M.Sc(P)-** Numerical ofinventory control |
| **Week 8**  **B.Sc I-**Conditions for orthogonality fundamental triad of mutually  orthogonal unit vectors.  **B.Sc III-**Eigen Value Problems: Power method, Jacobi’s method, Given’s method.  **M.Sc(P)-**Game Theory : Two person zero sum game, Game with saddle points  **Assignments:**  **B.Sc I-**numericals of orthogonal curvilinear coordinates  **B.Sc III-** numericals of eigen value problem  **M.Sc(P)-** numerical of inventory control |
| **Week 9**  **B.Sc I-** Holi break  **B.Sc III-** Holi break  **M.Sc(P)-** Holi break  **Assignments:**  **B.Sc I-**  **B.Sc III**  **M.Sc(P)** |
| **Week 10**  **B.Sc I-** Gradient, Divergence, Curl and Laplacian operators in terms of  orthogonal curvilinear coordinates  **B.Sc III-**House-Holder’s  method, QR method, Lanczos method,  **M.Sc(P)-**The rule of dominance; Algebric, Graphical and linear programming methods for solving mixed strategy  games.  **Assignments:**  **B.Sc I-** Numerical based on gradient, divergene of orthogonal curvilinear coordinates  **B.Sc III-** Numerical based on jacobi method  **M.Sc(P)-** Numerical of two person zero sum game |
| **Week 11**  **B.Sc I-**Cylindrical co-ordinates and Spherical co-ordinates.  **B.Sc III-**Numerical Integration: Newton-Cote’s Quadrature formula, Trapezoidal rule, Simpson’s onethird  and three-eighth rule, Chebychev formula.  **M.Sc(P)-**Operations Research: Origin, Definition and scope.  Linear Programming: Formulation and solution of linear programming problems by graphical and  simplex methods, Big - M and two-phase methods, Degeneracy  **Assignments:**  **B.Sc I-** Numerical based on cylinderical coordinates  **B.Sc II-** Numerical based on trapezoidal rule  **M.Sc(P)-** numerical of algebraic and graphical method |
| **Week 12**  **B.Sc I-**Vector integration; Line integral, Surface integral, Volume integral.  **B.Sc III-** Gauss Quadrature formula, Numerical solution of ordinary differential equations: Single step methods  -Picard’s method. Taylor’s series method.  **M.Sc(P)-** Duality in linear programming, Transportation Problems: Basic feasible solutions,  Optimum solution by stepping stone and modified distribution methods, Unbalanced and degenerate problems,  **Assignment:**  **B.Sc I-** Numerical of vector integration  **B.Sc III-** Numerical based on Picards method  **M.Sc(P)-** Numerical based on simplex and Big-M method |
| **Week 13**  **B.Sc I-** Theorems of Gauss, Green & Stokes and problems based on these theorms.  **B.Sc III-**Euler’s method, Runge-Kutta Methods. Multiple step  methods; Predictor-corrector method, Modified Euler’s method, Milne-Simpson’s  method.  **M.Sc(P)-** Transhipment problem, Assignment problems: Hungarian method, Unbalanced  problem, Case of maximization, Travelling salesman and crew assignment problems.  **Assignments:**  **B.Sc I-** Numerical based on Green's, Gauss and Stoke's theorem  **B.Sc III-** Numerical of Runge-Kutte method  **M.Sc(P)-**Numerical of Assignment problem |
| **Week 14**  **B.Sc I-** Revision  **B.Sc III-** Revision  **M.Sc(P)-** Revision  **Assignments:**  **B.Sc I-**Last year question paper  **B.Sc III-** Last year question paper  **M.Sc(P)-** Last year question paper |

**SUMMARY OF LESSON PLAN OF COLLEGE FACULTY**

**Name of College:** GVM Girls College **Academic Session:** 2017-18 **Semester:**Even **For the month of** Jan 2018

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| **Sr No** | **Name of Assistant/Associate Professor** | **Class , Subject** | **Topics/Chapters to be covered** | **Academic activity to be organised** | **Topic of Assignments/ Tests to be given to the students** |
| 1 | Poonam | Bsc1st -vectorcalculas | Ch-1Multiple product of vectors  Ch-2 Differentiation of vectors |  | ex-1.2,1.3,1.4 |

**Name of College:** GVM Girls College **Academic Session:** 2017-18 **Semester:**Even **For the month of** FEB 2018

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| **Sr No** | **Name of Assistant/Associate Professor** | **Class,Subject** | **Topics/Chapters to be covered** | **Academic activity to be organised** | **Topic of Assignments/ Tests to be given to the students** |
| 1 | Poonam | Bsc 1st -Vector calculas | Gradient,Divergence and curl |  | ex-3.1,3.3,3.4,3.6 |

**Name of College:** GVM Girls College **Academic Session:** 2017-18 **Semester:**Even **For the month of** March 2018

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| **Sr No** | **Name of Assistant/Associate Professor** | **Class and Subject** | **Topics/Chapters to be covered** | **Academic activity to be organised** | **Topic of Assignments/ Tests to be given to the students** |
| 1 | Poonam | Bsc 1st-Vector calculas | Curvilinear coordinates |  | ex-4.1 |

**Name of College:** GVM Girls College **Academic Session:** 2017-18 **Semester:**Even **For the month of** April 2018

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| **Sr No** | **Name of Assistant/Associate Professor** | **Class,Subject** | **Topics/Chapters to be covered** | **Academic activity to be organised** | **Topic of Assignments/ Tests to be given to the students** |
| 1 | Poonam | Bsc 1st-Vector calculas | Vector Integration,Gauss Green' s and Stoke' s thm | Oral test of definitions | ex-5.1,5.3,5.4,6.1 |

**Name of College:** GVM Girls College **Academic Session:** 2017-18 S**emester:**Even **For the month of** Jan 2018

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| **Sr No** | **Name of Assistant/Associate Professor** | **Subject** | **Topics/Chapters to be covered** | **Academic activity to be organised** | **Topic of Assignments/ Tests to be given to the students** |
| 1 | Poonam | Msc prev. | Method of separation of variables to solve boundary problems associated with one dimension heat equations |  | Test of Sol of heat equations in Cartesian cylindrical and spherical coordinates |
|  |  | PartialDifferential equations | Steady state temperature in a rectangular plate,circular disc, semi finite plate |  |  |
|  |  |  | The heat equations in semi-infinte and infinite regions |  |  |
|  |  |  | Solution of three dimensional Laplace eqn,wave equation,heat equation in Cartesian cylindrical and spherical coordinates |  | Test of method of separation of variables to solve boundary problems associated with motion of a vibrating string |
|  |  |  | Method of separation of variables to solve B.V.P associated with motion of a vibrating string. |  |  |
|  |  |  | Sol of wave equation for semi-semi-infinte and infinite strings. |  |  |

**Name of College:** GVM Girls College **Academic Session:** 2017-18 **Semester:**Even **For the month of** Feb 2018

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| **Sr No** | **Name of Assistant/Associate Professor** | **Subject** | **Topics/Chapters to be covered** | **Academic activity to be organised** | **Topic of Assignments/ Tests to be given to the students** |
| 1 | Poonam | Mscprev.  Partial differential equation | Partial differential equation:ex of PDE classification. |  |  |
|  |  |  | Transport equation- Initial value problem,non-homogeneous equation | Assignment of properties of harmonic function | Test of I.V.P |
|  |  |  | Laplace equation – fundamental solution |  |  |
|  |  |  | Mean value formula |  | Test of green func and fundamental solution |
|  |  |  | Properties of harmonic functions |  |  |
|  |  |  | Green function |  |  |

**Name of College:** GVM Girls College **Academic Session:** 2017-18 **Semester:**Even **For the month of** March 2018

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| **Sr No** | **Name of Assistant/Associate Professor** | **Subject** | **Topics/Chapters to be covered** | **Academic activity to be organised** | **Topic of Assignments/ Tests to be given to the students** |
| 1 | Poonam | Msc prev.  Partial differential equation | Heat equation- fundamental solution | Assignment of heat equation- fundamental sol |  |
|  |  |  | Mean value formula |  |  |
|  |  |  | Properties of solution | Assignment of wave equation- solution by spherical means | Test of properties of heat equation sol |
|  |  |  | Energy methods |  |  |
|  |  |  | Wave equation- solution by spherical means |  |  |
|  |  |  | Non – homogeneous equation |  |  |
|  |  |  | Wave equation- energy method |  |  |

**Name of College:** GVM Girls College **Academic Session:** 2017-18 **Semester:**Even **For the month of** April 2018

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| **Sr No** | **Name of Assistant/Associate Professor** | **Subject** | **Topics/Chapters to be covered** | **Academic activity to be organised** | **Topic of Assignments/ Tests to be given to the students** |
| 1 | Poonam | Mscprev.  Partial differential equation | Non-linear first order PDE- complete integerals |  |  |
|  |  |  | Envelopes |  |  |
|  |  |  | Characteristics |  | Test of Hamilton Jacobi equation |
|  |  |  | Hamilton Jacobi equation | Assignment of Hamilton Jacobi equation |  |
|  |  |  | Calculas of variation |  | Test of non linear first order PDE |
|  |  |  | Hamilton ODE,legendre transform |  |  |
|  |  |  | Hopf-lax formula,weakSol,uniqueness |  |  |