**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 Hermitefunctions and their properties-Recurrence Relations and generating functions.**M.Sc(P)-** Iterated kernels and Neumann series for Fredholm equations. Resolvent kernel as a sum ofseries. 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 Laplacetransforms, 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 ofordinary 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 Laplacetransform,**M.Sc(P)-**Euler equation for one dependant function and its generalization to 'n' dependant functions and to higherorder 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 Equationsusing 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** |
| JanuaryWeek- 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** |
| JanuaryWeek- 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** |
| JanuaryWeek- 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** |
| JanuaryWeek- 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** |
| FebruaryWeek- 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** |
| FebruaryWeek- 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** |
| FebruaryWeek- 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** |
| FebruaryWeek- 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** |
| MarchWeek- 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** |
| MarchWeek- 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** |
| MarchWeek- 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** |
| AprilWeek- 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** |
| JanuaryWeek- 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** |
| JanuaryWeek- 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** |
| JanuaryWeek- 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** |
| JanuaryWeek- 4 | * M.Sc(F) Mathematics
 | Sub sonic and super sonic flows, isentropic gas flow  |
| * M.Sc(P) Mathematics
 | Borel setEquivalent 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** |
| JanuaryWeek- 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** |
| FebruaryWeek- 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** |
| FebruaryWeek- 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 functionMeasureable 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** |
| FebruaryWeek- 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** |
| FebruaryWeek- 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** |
| FebruaryWeek- 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** |
| MarchWeek- 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** |
| MarchWeek- 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** |
| MarchWeek- 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** |
| MarchWeek- 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 functionsFiles in C |
| * B.COM 1st
 | Ratio and proportion |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| MarchWeek- 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** |
| AprilWeek- 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 functionsFunction 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 methodsSimultaneous linear algebraic equations:Gauss-elimination,Gauss-Jordan methodLU 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 integralFundamental theorem of calculusAbsolutely 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** |
| JanuaryWeek- 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** |
| JanuaryWeek- 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** |
| JanuaryWeek- 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** |
| JanuaryWeek- 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** |
| JanuaryWeek- 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** |
| FebruaryWeek- 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** |
| FebruaryWeek- 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** |
| FebruaryWeek- 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** |
| FebruaryWeek- 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** |
| FebruaryWeek- 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** |
| MarchWeek- 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** |
| MarchWeek- 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** |
| MarchWeek- 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** |
| MarchWeek- 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** |
| MarchWeek- 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** |
| AprilWeek- 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** |
| AprilWeek-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** |
| JanuaryWeek- 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** |
| JanuaryWeek- 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** |
| JanuaryWeek- 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** |
| JanuaryWeek- 4 | * M.Sc(F) Mathematics
 | Conjugate of a Hilbert Space,Riesz-Representation Theorem in Hilbert SpaceAdjoint 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** |
| JanuaryWeek- 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** |
| FebruaryWeek- 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** |
| FebruaryWeek- 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** |
| FebruaryWeek- 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** |
| FebruaryWeek- 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** |
| FebruaryWeek- 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** |
| MarchWeek- 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** |
| MarchWeek- 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** |
| MarchWeek- 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** |
| MarchWeek- 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 functionsFiles in C |
| * Practicals in C
 | Program to swap two numbers using pointers |

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| **Month/ Week** | **Class & Subject** | **Topics to be covered** |
| MarchWeek- 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** |
| AprilWeek- 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 methodsSimultaneous linear algebraic equations:Gauss-elimination,Gauss-Jordan methodLU 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** |
| JanuaryWeek- 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** |
| JanuaryWeek- 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** |
| JanuaryWeek- 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** |
| JanuaryWeek- 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** |
| FebruaryWeek- 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** |
| FebruaryWeek- 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** |
| FebruaryWeek- 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** |
| FebruaryWeek- 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** |
| MarchWeek- 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** |
| MarchWeek- 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** |
| MarchWeek- 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** |
| MarchWeek- 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** |
| AprilWeek- 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 ina 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’sbackward 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’sbackward 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 divideddifference, Lagrange’s Interpolation formulae, Hermite Formula**M.Sc(P)-** Steady-state solution of Markovian queuing modelswith 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 gradientas 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 theirrelated 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 mutuallyorthogonal 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 oforthogonal curvilinear coordinates**B.Sc III-**House-Holder’smethod, QR method, Lanczos method, **M.Sc(P)-**The rule of dominance; Algebric, Graphical and linear programming methods for solving mixed strategygames.**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 onethirdand 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 stepmethods; Predictor-corrector method, Modified Euler’s method, Milne-Simpson’smethod.**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 vectorsCh-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 |   |   |