Teaching Plan for (2022-23)

Mehr Chand Mahajan DAV College for Women, Sector – 36A, Chandigarh

Department: Mathematics Class: M Sc I Sem 1,

Subject: MATH 601S Real Analysis Name of the Teacher: Dr Nisha Sharma			
Dates (Monthly)		**Topics to be Covered**	**Academic Activity Undertaken***
From	**To**		
13 September	26 October	Countable and Uncountable sets, Metric Spaces, Compact sets, Perfect sets, Connected sets, Convergent and Cauchy sequences, Convergence of series, Continuous functions, Continuity-compactness and connectedness, Monotonic functions, Riemann-Stieljes Integral- Definition, Existence and Properties.	Syllabus intimation, Examination Pattern, marking scheme discussed, Doubt sessions
27 October	27 November	Integration of real valued function, Rectfiable curves, Sequences and series of functions- Uniform converegence, Stone-Weierstrass theorem	Doubt session, Assignments, Question papers discussed. Revision of a few topics.
Subject : MATH 602S Algebra Name of the Teacher: Dr Sonica			
13 September	26 October	Groups,Homomorphism of groups,Permutation group and conjugate elements,Direct product of groups,Sylow theorems. Finite simple groups,	Doubt Session, Examination pattern discussed, Test Conducted
27 October	27 November	Solvable groups, Fundamental theorem for finite abelian groups.Ring, Ring Homomorphism, Some special Rings.	Doubt session, Assignments, Question papers discussed. Revision of a few topics.
Subject: MATH 603S Differential equations Name of the Teacher : Dr Manisha			
13 September	26 October	Existence and uniqueness of solution of first order equation, Lipschitz Condition,Sturm Liouville Boundary value problem,Heat Equation, wave equation,Simultaneous Differential equation of first order and first degree in three variables, Orthogonal trajectories, Pfaffian Differential Equations,	Doubt Session, Examination pattern discussed, Test Conducted
27 October	27 November	Partial Differential equation of first order ,Cauchy method,Charpit's method Special type of first order equations,Partial differential equation of second and higher order,particular integral of non-homogeneous equations,	Doubt session, Assignments, Question papers discussed. Revision of a few topics
Subject : MATH 604S Complex Analysis I Name of the Teacher: Dr Neela Pawar			
13 September	26 October	Complex Plane, Topology on complex plane, Analytic Functions Power Series, Exponential and Trigonometric functions, Complex Integration	Doubt Session, Examination pattern discussed, Test Conducted

	27 October	27 November	Cauchy's theorem, Cauchy's Integral formula. Morera's Theorem. General Form of Cauchy's theorem	Doubt session, Assignments, Question papers discussed. Revision of a few topics.

Subject: MATH 605S Number Theory Name of the Teacher: Dr Leetika

	13 September	26 October	Divisibility, Greatest common divisor, Euclidean Algorithm, The Fundamental Theorem of arithmetic, congruences, Special divisibility tests, Chinese remainder theorem, Fermat's little theorem, Wilson's theorem, residue classes and reduced residue classes, Euler's theorem, Arithmetic functions ,	Doubt Session, Examination pattern discussed, Test Conducted
	27 October	27 November	Mobius inversion Formula, the greatest integer function, perfect numbers, Mersenne primes and Fermat numbers. Primitive roots and indices, Quadratic residues,Quadratic reciprocity law, Jacobi symbol, Binary quadratic forms and their reduction, sums of two and four squares, positive definite binary quadratic forms, Diophantine equations	Doubt session, Assignments, Question papers discussed. Revision of a few topics

Departmental Meeting was held after the completion of every month to review the syllabus distribution

***Any of these** – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc.

Teaching Plan for (2022-23)

Mehr Chand Mahajan DAV College for Women, Sector – 36A, Chandigarh

Department: Mathematics Class: M. Sc. 2 Semester- 3

	Subject : MATH-678S : Linear Programming Name of the Teacher : Dr. Navjot Kaur			
	Dates (Monthly)		**Topics to be Covered**	**Academic Activity Undertaken***
	From	**To**		
	22 August	16 October	Linear Programming and examples, Convex Sets, Hyperplane, Basic Feasible and Optimal Solutions, Extreme Point & graphical methods. Simplex method, Charnes-M method, Two phase method, Duality theory, Dual linear Programming Problems, fundamental properties of dual Problems, Complementary slackness, Dual Simplex Algorithm, Parametric Programming, Revised Simplex method, Transportation Problems, Balanced and unbalanced Transportation problems, U-V method, Paradox in Transportation problem, Assignment problems, Integer Programming problems	Doubt Session, Examination pattern discussed, Test Conducted , Assignments provided
	17 October	27 November	Pure and Mixed Integer Programming problems, 0-1 programming problem, Gomary's algorithm, Branch & Bound Technique. Travelling salesman problem, Sensitivity analysis	Doubt session, Assignments, Question papers discussed. Revision of a few topics.
Subject: MATH-661S : Probability and Mathematical Statistics-I Name of the Teacher: Ms. Chitra				
	22 August	16 October	Measurement scales, Attribute and variable,Collection, Compilation and Tabulation of data, Measures of central tendency their properties. Standard deviation and Kurtosis, Box and Whisker plot Correlation & Regression Analysis Karl Pearson's and Spearman's rank correlation coefficient. Linear Regression and its properties. Theory of attributes, independence and association, Probability: Bayes' theorem and its applications. Discrete and Continuous random variables. Probability mass and density function, Expectation of single and two dimensional random variables. Moment generating function and probability generating functions	Syllabus intimation, Examination Pattern, marking scheme discussed, Doubt sessions
	17 October	27 November	Distributions Binomial. Poisson distribution, Negative Binomial and Hypergeometric. Uniform, Normal distribution. Beta, Gamma, Chi-square and Bivariate normal distributions.Chebyshev's inequality, weak law of large numbers, Central limit theorems.	Doubt session, Assignments, Question papers discussed. Revision of a few topics.
Subject: MATH-618S : Topology Name of the Teacher: Dr. Sonica				
	22 August	16 October	Topological spaces, bases for a topology, the subspace topology, closed sets and limit points, countability axioms, continuous functions, Connected spaces, connected subspaces of a real line. Components and local connectedness, compact spaces, compact space of a real line, limit point compactness, local compactness, nets, order topology, product topology, quotient topology	Doubt Session, Examination pattern discussed, Test Conducted, taken few presentations
	17 October	27 November	Separation axioms, Normal spaces, the Urysohn Lemma, the UrysohnMetrization theorem, Tietze extension theorem and the Tychonoff theorem.	Doubt session, Assignments, Question papers discussed. Revision of a few topics.

Subject: MATH-617S : Field Theory Name of the Teacher: Dr Swati Sidana

	22 August	16 October	Fields, Prime field, Field extension, Algebraic extension, Splitting fields, Algebraically closed fields, Algebraic closure, Separable and inseparable extension, Normal extension, Perfect fields, Primitive elements, Langrange's Theorem on primitive elements, Galois extension	Doubt Session, Examination pattern discussed, Test Conducted
	17 October	27 November	Fundamental Theorem of Galois theory, Cyclotomic and cyclic extensions, Applications of cyclotomic extension and Galois theory to the constructability of regular polygons, Solvability of polynomials by radicals	Doubt session, Assignments, Question papers discussed. Revision of a few topics.

Subject : MATH-676S : Fluid Mechanics-I Name of the Teacher: Dr. Nisha Sharma

	22 August	16 October	Real, Ideal fluids, Velocity of fluid particle, Streamline, Pathline, Velocity Potential, Vorticity vector, Local-Particle Rate of change, Equation of continuity, Irrotational and rotational motion, rigid boundary conditions, Application of Euler and Bernoulli theorem, Potential theorems, Axis symmetric flow, Impulsive motion, Kelvin theorem, vorticity equation, 3 D flow, Images in plane and solid sphere, Stoke stream function	Course Teaching, Assignments, Doubt session with discussions
	17 October	27 November	2D flow, Complex potential. Milne Thompson theorem, Blasius theorem with applications, Karman Vortex Street	Class tests, Previous year QP discussions, Projects, Doubts taking, Presentations

Subject : MATH-672S : Computational Techniques-I Name of the Teacher: Dr. Manisha, Ms Anupreet Kaur

	22 August	16 October	Programmer's model of a computer, Types of computers, General awareness of Computer Hardware – CPU, Input, Output and peripherals, Software and Programming languages, General awareness of MS – Word. Programming in FORTRAN 77: Character set, constants, variables, Arithmetic expressions, Format specification, READ, WRITE statements, unformatted I/O Statements, Unconditional GO TO, Computed GO TO Solution of non-linear equations: Functional iteration, Bisection, Secant, Regula-Falsi, Newton-Raphson and Bairstow's methods, Rate of convergence of these methods, Solution of linear system of equations: Gauss elimination, Gauss Seidal and Triangularization methods, Condition of convergence of these methods. Writing programs in FORTRAN for the problems based on the methods studied in theory paper and to run the program of PC.	Course Teaching, Assignments, Doubt session with discussions Programming and practical sessions

	17 October	27 November	Arithmetic and Logical IF statements, IF-THEN-ELSE, Nested IF-THEN-ELSE, ELSE-IF-THEN, DO loops, Nested DO loops, CONTINUE Statement, Data statement, Double Precision, Logical Data, Complex Data, WHILE Structure, Arrays-One and multidimensional, Subscripted Variables, Implied DO loops, Sorting Problem, Function Subprograms and Subroutine subprograms, COMMON, EQUIVALENCE, Simple programs. Interpolation: Finite difference operators, Newton interpolation, Gauss Forward and backward interpolation formulae, Newton's divided difference formula, Lagrange's Formula, Inverse interpolation, Hermite interpolation. Writing programs in FORTRAN for the problems based on the methods studied in theory paper and to run the program of PC.	Class tests, Previous year QP discussions, Projects, Doubts taking, Presentations Programming and practical sessions

Departmental Meeting was held after the completion of every month to review the syllabus distribution.

***Any of these** – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc.
Other Methods adopted by the teacher – Please write the specific teaching method

Lesson Plan for (2022-23)

Mehr Chand Mahajan DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (Semester 1)
Session – 2022-23

Department: Mathematics
Class: B Sc I Sem 1, Section (s): NM & Voc
Name of the Teachers: Dr Neela Pawar, Dr Swati Sidana, Dr Leetika, Ms Chitra, Ms Promila

Subject : Calculus I

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1	26 August	20 September	Real Nos, Limits, Continuity,	Doubt Session, Examination pattern discussed, Test Conducted
2	21 September	20 October	Mean value theorems,	Doubt session, Assignments provided Mid Term Test held
3	21 October	27 November	Hyperbolic functions, Successive Differention	Doubt session, Assignments, Question papers discussed. Revision of a few topics.
Subject : Plane Geometry				
1	26 August	20 September	Transformation of axes, Pair of straight lines, Joint equation of straight lines,	Syllabus intimation, Examination Pattern, marking scheme discussed, Doubt sessions
2	21 September	20 October	Circle, pole polar and co-axial family of circles.	Assignments, tests, Mid Term Examination
3	21 October	27 November	Conics: Parabola, Ellipse , hyperbola and their properties.	Doubt session, Assignments, Question papers discussed. Revision of a few topics.
Subject : Trigonometry and Matrices				
1	26 August	20 September	D'Movires theorem and applications, functions of Complex variables	Doubt Session, Examination pattern discussed, Test Conducted
2	21 September	20 October	Summation of series, Matrices,	Doubt session, Assignments provided Mid Term Test held
3	21 October	27 November	Rank of matrices, eigen values, diagonalization.	Doubt session, Assignments, Question papers discussed. Revision of a few topics.
Departmental Meeting was held after the completion of every month to review the syllabus distribution.				

***Any of these** – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc.
Other Methods adopted by the teacher – Please write the specific teaching method

Lesson Plan for (2022-23)

Mehr Chand Mahajan DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (Semester 3)
Session – (2022-23)

Department: Mathematics

Class B A/ B Sc II Subject : Mathematics Section (s) NM & Voc
Name of Teachers : Dr Neela Pawar, Dr Swati Sidana, Dr Manisha, Dr Navjot Kaur, Ms Promila, Ms Chitra

Paper I - Advanced Calculus I

Sr No .	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1	22 August	20 September	Limit and continuity, Partial differentiation and diffeentiability, Change of variables, Schwarz and young theorems	Lecture method, discussions
2	21 September	20 October	Inverse and implicit functions, , Euler's theorem	Assignments, Test
3	21 October	27 November	, Taylors theorem , jacobians, Evolutes, Maxima minima, Lagrange's multiplier method	Discussion of exam pattern and previous question papers
Paper II - Differential equations II				
1	22 August	20 September	Exact differential eqns, First and higher order eqns, Clairaut form,	Introduction of syllabus , exam pattern, doubt sessions
2	21 September	20 October	Singular solutions, Orthogonal trajectories, Linear diff eqns with constant	Extra questions, MST
3	21 October	27 November	and variable coeffs, linear diff eqns of second order, simultaneous diff eqns	Revision of few selected topics, Discussion of previous question papers
Paper III – Statics				
1	22 August	20 September	Concurrent forces, components Resolved parts of a force, Resultant of forces	Lecture, Assignments, Test
2	21 September	20 October	Equibilirium of three forces, Lami's theorem, Parallel forces, moments and couples, Equivalent couples	Quiz, discussion,
3	21 October	27 November	Varignon's theorem, resultant of a force and couple, equilibrium conditions, Friction.	Revision of few selected topics, Discussion of previous question papers
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus was held after each unit of lesson plans				

*Any of these – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc.
Other Methods adopted by the teacher – Please write the specific teaching method

Lesson Plan 2022- 23

Mehr Chand Mahajan DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (Semester 5)
Session – 2022 -23

Department: Mathematics
Class B A/ B Sc III Sem 5 Subject: Mathematics Section (s) NM A, B & Voc
Name of the Teachers: Dr Swati Sidana, Dr Leetika, Dr Navjot Kaur, Ms Promila, Dr Nisha Sharma, Dr Manisha, Ms Chitra

Paper I: Analysis I

Sr No	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1	22 August	20 September	Countable and uncountable sets, Riemann Integration,	Lecture method, discussions
2	21 September	20 October	Beta and Gamma functions, Improper Integrals, and convergence	Assignments, Test Mid Sem Test
3	21 October	27 November	Able's and Dirichlet's test, Frullani integral, Continuity, derivability and integrabilityof a function of a parameter	Discussion of exam pattern and previous question papers
Paper II: Modern Algebra				
1	22 August	20 September	Groups, Sub groups, Lagrange's theorem,	Introduction of syllabus , exam pattern, doubt sessions
2	21 September	20 October	Permutation groups, Alternating groups, Rings	Extra questions, Mid Sem Test
3	21 October	27 November	Integral domains, Subrings and ideals, homomorphism, Isomorphism, Polynomial Rings	Revision of few selected topics, Discussion of previous question papers
Paper III: Probability Theory				
1	22 August	20 September	Notion of Probability, Random variables	Lecture, Assignments, Test
2	21 September	20 October	Discrete and Continuous Random variables,	Quiz, discussion, Mid Sem Test
3	21 October	27 November	Bivariate Random Variables, Distribution of Functions	Revision of few selected topics, Discussion of previous question papers
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				

*Any of these – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc.
Other Methods adopted by the teacher – Please write the specific teaching method