

Teaching Plan for (2021-22)

MCM DAV College for Women, Sector – 36A, Chandigarh

**Department: Mathematics Class: M Sc I Sem 1,
Subject : MATH 604S Complex Analysis I Name of the Teacher: Dr Neela Pawar**

Dates (Monthly)		Topics to be Covered	Academic Activity Undertaken*
From	To		
23 September	16 November	Complex Plane, Topology on complex plane, Analytic Functions Power Series, Exponential and Trigonometric functions, Complex Integration	Doubt Session, Examination pattern discussed, Test Conducted
17 Nov, 2021	Jan 24, 2022	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 601S Real Analysis Name of the Teacher: Dr Nisha Sharma			
23 September	16 November	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
17 Nov, 2021	Jan 24, 2022	Integration of real valued function, Rectifiable curves, Sequences and series of functions- Uniform convergence, Stone-Weierstrass theorem	Doubt session, Assignments, Question papers discussed. Revision of a few topics.
Subject : MATH 602S Algebra Name of the Teacher: Dr Sonica			
23 September	16 November	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
17 Nov, 2021	Jan 24, 2022	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 Arshpreet			
23 September	16 November	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

	17 Nov, 2021	Jan 24, 2022	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,particualr integral of non- homogeneous equations,	Doubt session, Assignments, Question papers discussed. Revision of a few topics
Subject: MATH 605S Number Theory Name of the Teacher: Dr Ekta Jain				
	23 Sep	16 November	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
	17 Nov, 2021	Jan 24, 2022	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 (2021-22)

MCM 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. Ekta Jain	
Dates (Monthly)		Topics to be Covered	Academic Activity Undertaken*
From	To		
20 August 2021	16 Nov	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
27 Nov, 21	20 January, 2022	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. Manisha	
20 August, 2021	16 Nov	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
27 Nov, 21	20 January, 2022	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. Nisha Sharma	
20 August 2021	16 Nov	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
27 Nov, 21	20 January, 2022	Separation axioms, Normal spaces, the Urysohn Lemma, the Urysohn Metrization 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				
	20 August 2021	16 Nov	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
	27 Nov, 21	20 January, 2022	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. Arshpreet				
	20 August 2021	16 Nov	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
	27 Nov, 21	20 January, 2022	2D flow, Complex potential. Milne Thompson theorem, Blasius theorem with applications, Karman Vortex Street	Class tests, Previous year QP discussions, Projects, Doubts taking, Presentations

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 (2021-22)

MCM DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (Semester 1)
Session – 2021-22

Department: Mathematics
Class: B Sc I Sem 1, Section (s): NM A, B & Voc

Subject : Calculus I Name of the Teachers: Dr Neela Pawar, Dr Ekta Jain,

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1	24 September	20 October	Real Nos, Limits, Continuity,	Doubt Session, Examination pattern discussed, Test Conducted
2	21 October	17 November	Mean value theorems,	Doubt session, Assignments provided Mid Term Test held
3	25 November	20 January	Hyperbolic functions, Successive Differentiation	Doubt session, Assignments, Question papers discussed. Revision of a few topics.
Subject : Plane Geometry Name of the Teachers: Dr Swati Sidana, Ms Chitra				
1	24 September	20 October	Transformation of axes, Pair of straight lines, Joint equation of straight lines,	Syllabus intimation, Examination Pattern, marking scheme discussed, Doubt sessions
2	21 October	17 November	Circle, pole polar and co-axial family of circles.	Assignments, tests, Mid Term Examination
3	25 November	20 January	Conics: Parabola, Ellipse , hyperbola and their properties.	Doubt session, Assignments, Question papers discussed. Revision of a few topics.
Subject : Trigonometry and Matrices Name of the Teachers : Dr Arshpreet, Ms Pallavi				
1	24 September	20 October	D'Movires theorem and applications, functions of Complex variables	Doubt Session, Examination pattern discussed, Test Conducted
2	21 October	17 November	Summation of series, Matrices,	Doubt session, Assignments provided Mid Term Test held
3	25 November	20 January	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.				

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 Other Methods adopted by the teacher – Please write the specific teaching method

Lesson Plan for (2021-22)

MCM DAV College for Women, Sector – 36A, Chandigarh

Monthly Teaching Plans (Semester 3)
Session – (2021-22)

Department: Mathematics

Class B A/ B Sc II Subject : Mathematics

Section (s) NM A, B & Voc

Paper I - Advanced Calculus I

Name of Teachers: Dr Swati Sidana, Ms Pallavi,

Sr No .	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1	26 August, 2021	15 October	Limit and continuity, Partial differentiation and differentiability, Change of variables, Schwarz and young theorems	Lecture method, discussions
2	16 October	16 November	Inverse and implicit functions, , Euler's theorem	Assignments, Test
3	24 November	20 January, 2022	, Taylors theorem , jacobians, Evolutes, Maxima minima, Lagrange's multiplier method	Discussion of exam pattern and previous question papers

Paper II - Differential equations II

Name of Teachers : Dr Sonica, Ms Manisha

1	26 August, 2021	15 October	Exact differential eqns, First and higher order eqns, Clairaut form,	Introduction of syllabus , exam pattern, doubt sessions
2	16 October	16 November	Singular solutions, Orthogonal trajectories, Linear diff eqns with constant	Extra questions, MST
3	24 November	20 January, 2022	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

Name of Teachers : Dr Nisha, Ms Chitra, Dr Arshpreet

1	26 August, 2021	15 October	Concurrent forces, components Resolved parts of a force, Resultant of forces	Lecture, Assignments, Test
2	16 October	16 November	Equilibrium of three forces, Lami's theorem, Parallel forces, moments and couples, Equivalent couples	Quiz, discussion,
3	24 November	20 January, 2022	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 2021- 22

MCM DAV College for Women, Sector – 36A, Chandigarh Monthly Teaching Plans (Semester 5) Session – 2021 -22

Department: Mathematics

Class B A/ B Sc III Sem 5

Subject: Mathematics

Section (s) NM, Voc

Paper I: Analysis I

Name of the Teachers: Ms Manisha, MS Pallavi

Sr No	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1	26 August, 2021	15 October	Countable and uncountable sets, Riemann Integration,	Lecture method, discussions
2	16 October	16 November	Beta and Gamma functions, Improper Integrals, and convergence	Assignments, Test Mid Sem Test
3	24 November	20 January, 2022	Able's and Dirichlet's test, Frullani integral, Continuity, derivability and integrability of a function of a parameter	Discussion of exam pattern and previous question papers
Paper II: Modern Algebra Name of the Teachers: Ms Chitra , Ms Manisha,				
1	26 August, 2021	15 October	Groups, Sub groups, Lagrange's theorem,	Introduction of syllabus , exam pattern, doubt sessions
2	16 October	16 November	Permutation groups, Alternating groups, Rings	Extra questions, Mid Sem Test
3	24 November	20 January, 2022	Integral domains, Subrings and ideals, homomorphism, Isomorphism, Polynomial Rings	Revision of few selected topics, Discussion of previous question papers
Paper III: Probability Theory Name of the Teachers: Dr Neela Pawar, MS Pallavi				
1	26 August, 2021	15 October	Notion of Probability, Random variables	Lecture, Assignments, Test
2	16 October	16 November	Discrete and Continuous Random variables,	Quiz, discussion, Mid Sem Test
3	24 November	20 January, 2022	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