Lesson Plan for (2022 -23)

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

Name of the Teacher/s : Dr Neela Pawar, Dr Swati Sidana, Dr Leetika, Ms Chitra, Ms Promila

Department: Mathematics

Class B Sc I (SEM 2) Subject : Mathematics Section (s) NM & Voc

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
Solid Geometry	16 January	10 February	Transformation of Second degree equation, Sphere	Lecture method, discussions
	11 February	15 march	Cylinder, Cone with vertex at origin	Assignments, Test
	16 March	29 April	Cone continued, equations of ellipsoid, hyperboliad and paraboliad.	Discussion of exam pattern and previous question papers
Calculus II	16 January	10 February	Real numbers, Limits, Continuity	Introduction of syllabus , exam pattern, doubt sessions
	11 February	15 march	Rolle's , Lagranges, Cauchy's Taylor's Theorem	Extra questions, MST
	16 March	29 April	Maclaurin's theorems and applications, Hyperbolic Functions, successive differentiation	Revision of few selected topics, Discussion od previous question papes
Theory of equations	16 January	10 February	Euclid's algorithm,synthetic division, complex roots, Relations between roots and coefficients,	Lecture, Assignments, Test
	11 February	15 march	transformation of Eqns, Descartes rule of signs, Newton's method of divisors	Quiz, discussion,
	16 March	29 April	Cardon method, Biquadratic eqns.	
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 4)
Session – 2022-23

Name of the Teacher/s : Dr Neela Pawar, Dr Swati Sidana, Dr Manisha, Dr Navjot Kaur, Ms Promila, Ms Chitra
Department: Mathematics

Class B A/ B Sc II (Semester 4) Subject: Mathematics Section (s) NM, Voc

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
Advanced Calculus II	16 January	10 February	Sequences, sub Sequences	
	11 February	15 march	Sequential and uniform Continuity, Series, p test, Comparison test, Cauchy's Integral and root test, Ratio Test	
	16 March	29 April	De Morgan test, Gauss test, log test, Leibnitz theorem, Absolute and conditional convergence, Riemann's arrangements.	
Differential equations II	16 January	10 February	Laplace and inverse Laplace transformations	
	11 February	15 march	Applications of Laplace transformations, Partial Differential eqns	
	16 March	29 April	Series solutions , Bessels and Legendre's eqns and solutions	
Dynamics	16 January	10 February	Motion of a particle with constant acceleration, falling bodies, law of motion, motion of two particle connected with string, motion along a plane	
	11 February	15 march	Variable acceleration, SHM, elastic string, curvilinear motion,	
	16 March	29 April	Work , power, energy, Relative motion, momentum, collision of elastic bodies.	
Departmental Meeting was held to Review the Monthly completion of Syllabus as per lesson plans				

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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 6)**
Session – 2022-23

Name of the Teacher/s: Dr Swati Sidana, Dr Leetika, Dr Navjot Kaur, Ms Promila, Dr Nisha Sharma, Dr Manisha, Ms Chitra

Department : Mathematics

Class B A / B Sc III Sem 6 Subject: Mathematics Section (s) NM A, B & Voc

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
Analysis II	16 January	10 February	Double and triple integrals,	
	11 February	15 march	Vector Calculus, Sequences and Series of functions,	
	16 March	29 April	Power Series, Fourier Series	
Linear Algebra	16 January	10 February	Vector Space, Subspaces, Basis and Dimensions	
	11 February	15 march	Linear transformation, rank and Nullity, linear transformation and matrices	
	16 March	29 April	Characteristic roots and vectors, Cayley Hamilton theorem, Diagonalizable operators and matrices	
Numerical Analysis	16 January	10 February	Solution of equations, Interpolation**,** Numerical Differentiation,	
	11 February	15 march	Numerical Quadrature, Linear equations,	
	16 March	29 April	The Algebraic Eigen value Problems, Ordinary Differential equations	
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

MCM DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans
Session – 2022-23

Department: Mathematics Class: M Sc I Semester 2

Subject : MATH 624S Complex Analysis II Name of the Teacher: Dr Neela Pawar

S.No.	Dates (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1	16 January	10 February	Maximum module principle, Taylor and laurants, series, Calculus of Residue,	Doubt Session, Examination pattern discussed, Test Conducted
2	11 February	15 march	Bilinear transformation, Zeroes and poles of meromorphic functions, Conformal mappings, Infinite products	Doubt session, Assignments provided Mid Term Test
3	16 March	29 April	Weirestrass and Mittaglefer's theorems, Analytic continuation, Gamma and Riemann Zeta functions.	Doubt session, Assignments, Question papers discussed. Revision of a few topics.
Subject: MATH 621S Real Analysis-II Name of the Teacher: Dr Nisha Sharma				
1	16 January	10 February	Differentiation of vector-valued function, Space of linear transformations as a metric spaces, Differentiation of vector-valued function of several variables, Inverse function theorem, Implicit function theorem, Outer measure, Measurable sets and Lebesgue measure, Non-measurable set	Syllabus intimation, Examination Pattern, marking scheme discussed, Doubt sessions
2	11 February	15 march	Measurable functions, Littlewood's three principles, Lebesgue Integral of bounded function over a set of finite mesure, Lebesgue Integral of non-negative function, General Lebesgue Integral	Assignments, tests, Mid Term Examination
3	16 March	29 April	Convergence in measure, Differentiation of monotone function, Differentiation of an integral, Absolute continuity, Convex functions	Doubt session, Assignments, Question papers discussed. Revision of a few topics.
Subject : MATH 622S Algebra-II Name of the Teacher: Dr Sonica				
1	16 January	10 February	Factorization theory in Integral Domains, Divisibility,UFD, PID,ED and their relationship,Noetherian and Artinian rings,examples and counter examples, Artinian rings without zero divisors.	Doubt Session, Examination pattern discussed, Test Conducted
2	11 February	15 march	Nil ideals in Artinian rings, HilberT Basis theorem, Modules, Difference between Modules and Vector spaces,Module Homomorphism,Quotient module, Completely reducible and semi simple module.	Doubt session, Assignments provided Mid Term Test held
3	16 March	29 April	Free Modules,Representation and Rank of linear mappings, Smith normal form over a PID, Finitely generated modules over a	Doubt session, Assignments, Question papers discussed. Revision of a few topics.

			PID,Rational Canonical form,Applications to finitely generated abelain groups.	

Subject: MATH 623S Vector Analysis and Mechanics Name of the Teacher: Dr Manisha

1	16 January	10 February	Scalar and Vector point function, Differentian and integration,Gradient,Curl and divergence operators and their applications,Green's theorem.Stoke's theorem,Gauss Divergence theorem and its applications.	Doubt Session, Examination pattern discussed, Test Conducted
2	11 February	15 march	Curvilinear co-ordinates, Generalized co-ordinates, Generalized acceleration, Generalized moments, Lagrange equation of motion and its applications, Variation principles for higher order and several variables.	Doubt session, Assignments provided Mid Term Test held
3	16 March	29 April	Hamilton canonical equation, Hamiltonian principle of least action, Reduction to the equivalent one body problem,Viral theorem,Rigid body motion about an axis,about a moving axis, The equation of motion and first integral, Classification of orbits.	Doubt session, Assignments, Question papers discussed. Revision of a few topics.

Subject: MATH 625S Number Theory -II Name of the Teacher: Dr Leetika

1	16 January	10 February	Farey sequences, Continued fractions, Approximation of reals by rationals, Pell's equations, Minkowski's theorem and its applications,	Doubt Session, Examination pattern discussed, Test Conducted, Assignments provided
2	11 February	15 march	Partitions, Order of magnitude and average order of arithmetic functions, Euler summation formula	Doubt session, Assignments provided Mid Term Test held
3	16 March	29 April	Abel's Identity, Elementary results on distribution of primes.	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)

MCM DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans
Session – 2022-23

Department: Mathematics Class: M. Sc. 2 Semester- 4

	Subject :MATH-698S : Non-Linear Programming Name of the Teacher : Dr. Navjot Kaur			
S. N.	**Dates (Monthly)**		**Topics to be Covered**	**Academic Activity Undertaken***
	From	**To**		
1	16 January	10 February	Nonlinear Programming, Minima and Maxima of convex function and concave functions. Generalizations of convex functions and their basic properties, Unconstrained problems, Fritz John conditions and Kuhn-Tucker conditions	Doubt Session, Examination pattern discussed, Test Conducted , Assignments provided
2	11 Februar y	15 march	Duality in Nonlinear Programming, Quadratic Programming, Linear fractional programming, Nonlinear fractional programming, Dinkelbach's approach	Doubt session, Assignments provided Mid Term Test
3	16 March	29 April	Game theory - Two-person, Zero-sum Games with mixed strategies, graphical solution, solution by Linear Programming.	Doubt session, Assignments, Question papers discussed. Revision of a few topics.
Subject: MATH-681S : Probability and Mathematical Statistics-II Name of the Teacher: Ms. Chitra				
1	16 January	10 February	Point estimation, unbiasedness, consistency, efficiency and Sufficiency. Factorization theorem, completeness, Rao-Blackwell theorem, Cramer-Rao inequality. Maximum likelihood method of estimation and method of moments. Interval estimation, confidence intervals for means, difference of means and variances.	Syllabus intimation, Examination Pattern, marking scheme discussed, Doubt sessions
2	11 Februar y	15 march	The basic idea of significance test. Null and alternative hypothesis, Type-I and TypeII errors. Uniformly most powerful tests, Likelihood Ratio tests. T , Chi-square and F-distributions. Tests of significance based on t, Chi-square and F Distribution	Assignments, tests, Mid Term Examination
3	16 March	29 April	One way and two way Analysis of Variance (ANOVA). Non-Parametric Tests: Sign test, Wilcoxon signed rank test, Mann-whitney test.	Doubt session, Assignments, Question papers discussed. Revision of a few topics.
Subject: MATH-638S : Functional Analysis Name of the Teacher: Dr. Sonica				
1	16 January	10 February	Banach Spaces with examples of LP ([a,b]) and C ([a,b]), Hahn Banach theorem, open mapping theorem, closed graph theorem, Baire Category theorem,	Doubt Session, Examination pattern discussed,Test conducted, taken few presentations
2	11 Februar y	15 march	BanachSteinhauns theorem (uniform boundedness principle), Boundedness and continuity of linear transformation, Dual Spaces, embedding in second dual	Doubt session, Assignments provided Mid Term Test held
3	16 March	29 April	Hilbert space, orthonormal basis, Bessel's inequality, Riesz Fischer theorem, Parseval's identity, bounded Linear functionals; projections, Riesz Representation theorem,	Doubt session, Assignments, Question papers discussed. Revision of a few topics.

			adjoint operators, self adjoint, normal, unitary and isometric operators	

Subject: MATH-637S : Linear Algebra Name of the Teacher: Dr. Swati Sidana

1	16 January	10 February	Vector Spaces-definition and examples, subspaces, direct sum of subspaces, linear dependence and independence, basis and dimension ,quotient spaces, linear transformation ,Algebra of linear transformation	Doubt Session, Examination pattern discussed, Test Conducted
2	11 Februar y	15 march	Linear functions, dual spaces, rank and nullity of linear transformation ,invariant subspaces, Linear transformation— eigen values and eigen vectors, Characteristic polynomial and minimal polynomial,	Doubt session, Students presentation taken, Mid Term Test
3	16 March	29 April	Diagonalization and triangularization of a matrix, Jordan and Rational canonical forms, bilinear spaces, symmetric bilinear form, Sylvester's Theorem, quadratic forms, Hermitianforms, Inner product spaces, Gram-Schmidt orthonormalization process	Doubt session, Assignments, Question papers discussed. Revision of a few topics.

Subject : MATH-696S : Fluid Mechanics-II Name of the Teacher: Dr. Nisha Sharma

1	16 January	10 February	Viscous Flows: Stress components, Stress and strain tensor, coefficient of viscosity and Laminar flow, plane Poiseuille flows and Couette flow. Flow through tubes of uniform cross section in the form of circle, Ellipse, equilateral triangle, annulus, under constant pressure gradient	Course Teaching, Assignments, Doubt session wi discussions
2	11 Februar y	15 march	Diffusion of vorticity. Energy dissipation due to viscosity, steady flow past a fixed sphere, dimensional analysis, Reynold numbers, Prandtl's boundary layer, Boundary layer equation in two dimensions, Karman integral equation.	Mid. Term , Presentations, Assignments
3	16 March	29 April	Elements of wave motion, waves in fluids, surface gravity waves, standing waves, dispersion relation, path of particles, waves at the interface of two liquids, equipartition of energy, group velocity, energy of propagation of waves.	Class tests, Previous year QP discussions, Projects, Doubts taking, Presentations

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

1	16 January	10 February	MS Excel: Introduction, Functions and Formulae, Graphics and Data base. Numerical Differentiation, Numerical Integration: General formulae, Trapeziodal rule, Simpson's 1/3 and 3/8 rule, Romberg integration, Newton-Cotes formulae, Gaussian integration. Writing programs in C for the problems based on the methods studied in theory paper and to run the program of PC.	Course Teaching, Assignments, Doubt session wi discussions Programming and Practical Sessions

2	11 Februar y	15 march	Programming in C: Historical development of C, Character set, Constants, Variables, Keywords, Operators, Hierarchy of arithmetic operations, if and if-else statements, Logical and Conditional Operators, Switch structure, while structure, do-while and for-Loops, Nested loops, Solution of Ordinary Differential Equations: Taylor's series, Picard method of Successive approximations, Euler's method, Modified Euler's method, Runge Kutta Method-2nd and 4th order, Predictor-Corrector methods, Milne-Simpson's method, Adam's – Bashforth method, Finite difference method for boundary value problems. Writing programs in C for the problems based on the methods studied in theory paper and to run the program of PC.	Mid. Term , Presentations, Assignments Programming and Practical Sessions	
3	16 March	29 April	Break and Continue statements, Arrays, Functions, Print Function, Function Declaration and Function Prototype, Return Statement, Local and Global Variables, Passing Arrays as parameter, Recursion and Library Functions, Files in C, Introduction to pointers, Simple programs. Approximation of functions: Chebyshev Polynomials, Orthogonality of Chebyshev polynomials, Lanczos Economization of Power series. Writing programs in C 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	

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