(Lesson Plan)

MCM DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (Even Semester)
Session – (2022-2023)
Name of the Teacher: Dr. Gurjit Kaur
Department: Department of Physics

Class: B.Sc. II (Honors)
Subject: Statistics and Numerical Techniques (Paper III)

S. No.	Date (Monthly) From	To	Topics to be Covered	Academic Activity Undertaken*
Even Semester				
1.	16rd Jan. 2023	31rd Jan. 2023	Measures of central tendency, Arithmetic mean, median, mode, Geometric mean, Harmonic mean, Quartiles, deciles and percentiles, Standard deviation, mean deviation, semi-interquartile range, coefficient of variation, Moments, Skewness and Kurtosis.	(i) Lecture method (ii) PPt (iii) Group discussion (iv) Numerical Problems
2.	1rd Feb. 2023	28th Feb. 2023	Linear Correlation and Regression for Two Variables only. Conditional probability, probability distributions, Mathematical expectation, Probability and Combinatorial analysis. Characterization of Data, Binomial, Normal and Poisson distributions and their applications, Estimation of the Precision of a Single Measurement, Measure of consistency of observed fluctuations with expected Statistical fluctuation, chi square, Error Propagation, Distribution of time intervals between successive random events.	(i) Lecture method (ii) PPt (iii) Group discussion (iv) Notes (v) Numerical Problems
2.	1st March, 2023	31st March, 2023	Solution of Algebraic and Transcendental Equations: Bisection Method, Secant Method, Newton-Raphson Method. Interpolation, Finite difference interpolation with equal intervals, Newton' Forward and Backward Interpolation Formulae, Interpolation with unequally spaced points, Lagrange's interpolation formula, Extrapolation. Numerical integration by Trapezoidal, Weddle's and Simpson's rules, Romberg integration.	(i) Lecture method (ii) PPt (iii) Group discussion (iv) Notes (v) Numerical Problems (vi) online material
3.	1st April,2 023	29st April,2 023	Numerical differentiation by Newtons's forward and backward difference formulae, divided difference formula. Numerical solution of differential equations, Euler's and Runge-Kutta Method. Method of least-squares fitting of straight line, parabola and exponential curves, least squares fitting for any non-linear function by iterative method.	(i) Lecture method (ii) Group discussion (iii) Notes (iv) Numerical Problems

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Monthly Teaching Plans (Even Semester)
Session – (2022-2023)

Name of the Teacher: Dr. Renu Bala
Department: Department of Physics

Class: B.Sc. II (Honors)
Subject: Mathematical Physics (Paper IV)

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	**To**		
			Even Semester	
1.	16rd Jan. 2023	31rd Jan. 2023	Methods of separation of variables; separation of Helmholtz equation in Cartesian, spherical and cylindrical coordinates. Laplace equation in various coordinate systems, Ordinary and singular points.	(i) Lecture method (ii) PPt (iii) Group discussion (iv) Notes (v) Numerical Problems
2.	1rd Feb. 2023	28th Feb. 2023	Examples of partial differential equations in physics, Heat Flow in one and two Dimensions, Series solution of differential equations - Power series solution about ordinary point and regular singular point. Dirac delta function, properties of delta function. Gamma function, factorial notation and applications. Beta function.	(i) Lecture method (ii) PPt (iii) Group discussion (iv) Notes (v) Numerical Problems
2.	1st March,2023	31st March,2023	Bessel's differential equation, Bessel functions of first kind, generating function, recurrence formulae, plots, zeros of Bessel functions and orthogonality. Legendre's equation, Legendre's polynomials, plots, generating functions, recurrence relations, orthogonality, Series expansion of a function in terms of a complete set of Legendre functions, Rodrigues formula.	(i) Lecture method (ii) PPt (iii) Group discussion (iv) Notes (v) Numerical Problems (vi) online material
3.	1st April,2023	29st April,2023	Laplace transforms, Applications of Laplace transforms to derivatives and integrals, s-domain interpretation of passive circuit elements R, L and C; Analysis of simple circuits in s-domain, Transfer function, poles and zeros, Stability of circuit.	(i) Lecture method (ii) Group discussion (iii) Notes (iv) Numerical Problems