

BAIJNATH CHAUDHARY GOVT. COLLEGE FOR WOMEN, NANGAL CHAUDHARY

Lesson Plan

Name of the Assistant/ Associate Professor: Dr. Anuja Yadav Sem. 2nd

Class and Section: B.Sc. 1st + B.A 1st Subject: Number Th. & Trigonometry (Maths)

Month	Topics
1 st Jan. 2024 to 31 st Jan. 2024	Divisibility, G.C.D, L.C.M, Primes, Fundamental Theorem of Arithmetic, Linear Congruences, Fermat's theorem, Wilson's theorem and its converse. Linear Diophantine equations in two variables (Test)
1 st Feb. 2024 to 29 th Feb. 2024	Complete residue system and residue system modulo. Fermat's thm, Chinese Remainder Thm., Quadratic residues, Legendre symbols. Lemma of Gauss, The number of divisors and the sum of divisor of a natural number n . Moebius function & Moebius inversion formula. (Test)
1 st March 2024 to 31 st March 2024	De Moivre's thm and its Application. Expansion of trigonometrical functions. Direct circular and hyperbolic function and their properties. (Test)
1 st April 2024 to 30 th April 2024	Inverse circular and hyperbolic function and their properties. Logarithm of a complex quantity. Gregory's series, Summation of Trigonometry series. Assignment (Test)

Anuja Yadav
Teacher's Signature

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Lesson Plan

Name of the Assistant/ Associate Professor: Dr. Anuja yadav Sem. 2nd

Class and Section: B.Sc. 1st + BA 1st Subject: Vector Calculus (Maths)

Month	Topics
1 st Jan. 2024 to 31 st Jan. 2024	Scalar and Vector product of three vectors, Product of Four vectors, Reciprocal vectors. Vector differentiation, Scalar valued point function, Vector valued point functions, derivative along a curve, directional derivatives. Test
1 st Feb. 2024 to 29 th Feb. 2024	Gradient of a scalar point, character of gradient as a point function. Divergence and curl of vector point function, character of $\text{div } \vec{f}$ and $\text{curl } \vec{f}$ as point function. Examples, Laplacian operator. (Test)
1 st March 2024 to 31 st March 2024	Orthogonal curvilinear co-ordinates. Conditions for orthogonality. Gradient, divergence, curl and Laplacian operators in terms of orthogonal curvilinear co-ordinates, cylindrical co-ordinates, spherical co-ordinates. (Test)
1 st April 2024 to 30 th April 2024	Vector integration, line integral, surface integral, volume integral Theorem of Gauss, Green, Stokes and Problems based on these. (Test) (Assignment)

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Lesson Plan

Name of the Assistant/ Associate Professor: Dr. Anuja Yadav Sem. 4th

Class and Section: B.Sc 2nd + B.A 2nd Subject: Sequences & Series (Maths)

Month	Topics
1 st Jan. 2024 to 31 st Jan. 2024	Boundedness of the set of real numbers, least upper bound, greatest lower bound of a set, neighbourhood, interior point, some related definitions, closure of a set in real numbers and their properties. Bolzano-Weierstrass theorem. Open covers. Compact set and Heine-Borel Theorem (Test)
1 st Feb. 2024 to 29 th Feb. 2024	Sequence: Real seq. and their convergence, Theorem on limit of seq., Bounded and Monotonic, Cauchy's seq., Subsequences, Infinite Series: Convergence and divergence of infinite series, Convergence and divergence of geometric series. Hyper Harmonic series or p-series (Test)
1 st March 2024 to 31 st March 2024	Infinite series: D'Alembert's Ratio Test, Raabe's test, Log. test, De Moivre and Bertrand's test, Cauchy's nth root test, Gauss test, Cauchy's integral test, Cauchy's condensation test. (Test)
1 st April 2024 to 30 th April 2024	Alternating Series: Leibnitz's test, Arbitrary Series; Abel's Lemma, Abel's test, Dirichlet's test, Riemann's Re-arrangement theorem. Multiplication of series, Cauchy product of series. (Test) (Assignment)

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Lesson Plan

Name of the Assistant/ Associate Professor: Dr. Anuja Yadav Sem...6.th.

Class and Section: B.Sc 3rd + B.A 3rd Subject: Real & Complex Analysis (Math)

Month	Topics
1 st Jan. 2024 to 31 st Jan. 2024	Jacobians, Beta & Gamma function, Double and Triple integrals, Dirichlet's integrals, Change of order of integration in double integrals. (Test)
1 st Feb. 2024 to 29 th Feb.2024	Fourier's series: Fourier expansion of piecewise monotonic function, Properties of Fourier Coeffs., Dirichlet's conditions, Parseval's identity for Fourier series, Fourier series for even and odd functions, Half range series, Change of intervals. (Test)
1 st March 2024 to 31 st March 2024	Extended Complex Plane, Stereographic projection of complex numbers, continuity and differentiability of complex functions, Analytic function, Cauchy-Riemann equations, Harmonic functions. (Test)
1 st April 2024 to 30 th April 2024	Mappings by elementary function: Translation, Rotation, Magnification and Inversion, Conformal Mapping, Mobius Transformation, Fixed point, Cross ratio, Inverse Point and Critical mapping. (Test) (Assignment)

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