

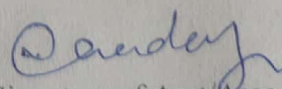
GOVERNMENT COLLEGE BIROHAR (JHAJJAR)

Summary of Lesson Plans of College Faculty for Academic Session 2024- 2025

Name of Assistant/Associate Professor: Dr. Narendra Singh

Class & Sem.: B.Sc. 2nd Sem. 6th Subject: Linear Algebra

Months	Topics/Chapters to be Covered
Jan 2025	vector spaces, subspaces, sum and direct sum of subspaces. Linear span. Linearly Independent and dependent subset of vector space. finitely generated vector space. Existence theorem for basis of a finitely generated vector space. finite dimensional vector space, Invariance of the number of bases sets. Dimension, Quotient space and its dimension
Feb 2025	Homomorphism and Isomorphism of vector spaces. Linear transformation and linear forms on vector spaces. vector space of all the linear transformations. Dual spaces, Bidual spaces, annihilator of subspaces of finite dimensional vector spaces. Null space, Range space of a linear transformation. Rank and nullity theorem
March 2025	Algebra of Linear Transformation. Minimal Polynomial of a linear transformation. Singular and non-singular linear transformations. Matrix of a linear transformation, change of basis, Eigen values and Eigen vectors of linear transformation.
April 2025	Inner product space, Cauchy-Schwarz inequality, orthogonal vectors, orthogonal complements, orthogonal sets and basis, Bessel's inequality for finite dimensional vector spaces, Gram-Schmidt, orthogonalization process, Adjoint of a linear transformation and its properties, Unitary linear transformation.


Signature of Asst/Asso. Professor

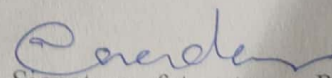
GOVERNMENT COLLEGE BIROHAR (JHAJJAR)

Summary of Lesson Plans of College Faculty for Academic Session 2024- 2025

Name of Assistant/Associate Professor: Dr Navender Singh

Class & Sem.: B.Sc 3rd Sem (H) Subject: Real and Complex

Months	Topics/Chapters to be Covered
Jan 2025	Jacobians, Beta and Gamma function, Double and Triple integrals, Dirichlet's integral, change of order of integration in double integrals
Feb 2025	Fourier's Series: Fourier expansion of piecewise monotonic functions, properties of Fourier Co-efficients, Dirichlet's Conditions, Parseval's identity for Fourier series, Fourier series for even and odd functions, Half range series, change of Intervals.
March 2025	Extended Complex plane, Stereographic projection of Complex numbers, continuity and differentiability of Complex functions, Analytic functions, Cauchy-Riemann equations. Harmonic functions.
April 2025	mapping by elementary function: Translation, rotation, magnification and Inversion, Conformal mappings, Mobius transformations. Fixed points, Cross ratio, Inverse points and Critical mappings.


Signature of Asst/Asso. Professor

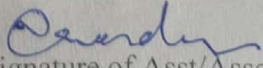
GOVERNMENT COLLEGE BIROHAR (JHAJJAR)

Summary of Lesson Plans of College Faculty for Academic Session 2024- 2025

Name of Assistant/Associate Professor: Dr Narender Singh

Class & Sem.: B.S.I Sem II Subject: Numerical Analysis

Months	Topics/Chapters to be Covered
Feb Jan 2025	Finite differences operators and their relations. Finding the missing terms & effect of error in difference tabular values, Interpolation with equal intervals. Newton's forward & Newton Backward Interpolation formulae. Interpolation with unequal intervals. Newton's difference. Lagrange's Interpolation formulae.
March Feb 2025	Central Differences Gauss forward & Gauss backward interpolation formulae. Sterling Bessel formulae. Numerical Differentiation. Derivative of a $f(x)$ using interpolation formulae. Eigen value problems. Power Method, Jacobi's Method, Givens's Method, House-Holder's Method QR Method.
April March 2025	Numerical: Integration Newton-Cotes's Quadrature formulae, trapezoidal rule, Simpson's one-third & three-eighths rule, Chebyshev formulae, Gauss Quadrature formulae. Test + Assignments.
May April 2025	Numerical solution of ordinary differential Equations: Single step Methods: Picard's Method, Taylor's series Method, Euler's Method, Runge-Kutta Method, Multiple Step Methods, Predictor-corrector Method, Modified Euler's Method, Milne-Simpson's Method. Test + Assignment.


Signature of Asst/Asso. Professor