

Dr. B.R.A. Govt. College, Jagdishpura, Kaithal

Name of Assistant professor: Rakesh Kumar

Class: M.Sc.(F) Subject: Functional Analysis

Week	Topic
1	Normed linear spaces, Banach spaces and examples Subspace of a Banach space
2	Quotient space of normed linear space Product of normed spaces
3	Subspaces, equivalent norms, compactness and finite
4	F. Riesz's lemma, Bounded and cts linear operators Differentiation operator, integral operators. continuity, boundedness, definite integral, canonical map
5	Linear operators, normed space of operators, dual space with examples
6	Hahn-Banach th, Complex linear spaces normed linear space, app of bdd linear functionals
7	Riesz representation th, Reflexive space, uniform bdd th and some of its application to space of bdd
8	Strong and weak cts, weak cts sp. of sep uniform operator, strong operator, weak operator
9	Strong and weak cts of sep. open mapping th. bdd inverse th, closed linear operators, closed graph th. differential operator, closed and bounded
10	G.B.S, Hilbert spaces and examples. Pythagorean th. Schwarz inequality, Continuity of G.B.S. Completion of an G.B.S orthogonal complements and direct sum
11	Characterization of Hilbert space. orthonormal sets
12	Bessel's inequality, series related to orthonormal sets, Parseval identity, Hilbert spaces, Representation of Hilbert space by Riesz form
13	Riesz representation th for bdd sesquilinear form
14	Hilbert adjoint operator, its existence and uniqueness properties of adjoint operator, self adjoint, unitary, normal.
15	Positive and projection operators.

Continued

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Name of Assistant professor: RAJESH KUMAR

Class: M.Sc(F), Subject: Integral Equations.

Week	Topic
1	Def of Integral Equation and their classification, Eigen values and Eigen functions. Special kind
2	of kernel convolution Integral. The inner product
3	function. Red to algebraic equation Fredholm alternative, Fredholm theorem.
4	Fredholm alternative theorem. An approximate method
5	Method of successive approximations, Iterative scheme. Volterra integral equations.
6	Condition of uniformity. Some results about the resolvent kernel. Application of iterative scheme
7	First th. Fredholm second th, Fredholm third theorem, symmetric kernels, Introduction.
8	Complex Hilbert space. An orthonormal system of function. Riesz-Fischer th. A complete
9	two dimensional orthonormal set. Fundamental properties of Eigen values and Eigen functions
10	Expansion in eigen functions and bilinear form Hilbert-Schmidt th and some immediate Coroll.
11	Definite kernel, Mercer's th set of symmetric Integ. Eq.
12	Ap of L_2 -kernel - Rayleigh-Ritz method to find the smallest integral equation. Inverse of kernel
13	kernel of type Cauchy principal of integral
14	closed contours, enclosed contours and the Riemann-Hilbert problem. The
15	Hilbert kernel. Solution of Hilbert Type singular Integral eq.

Ranj Kumar

Dr. B.R.A. Govt. College, Jagdishpura, Kaithal

Name of Assistant professor: Rakesh Kumar

Class: B.Com-I Subject: Business Maths

Week	Topic
1	Set theory: Representation of sets, universal set, power set, Complement of a set
2	Venn Diagrams: Union and intersection of sets, De-Morgan laws
3	logical statements and truth table
4	Logarithms: Laws of operation log tables
5	Arithmetic and geometric progress
6	Matrices and Determinants:-
7	Definition of a Matrix, order equality, types of matrix,
8	Operation on Matrices: Addition,
9	multiplication and multiplication with a scalar and their simple properties.
10	Determinant of a square matrix: Properties of determinants, minor, Cofactor and application of determinant in finding the area of triangle.
11	adjoint and inverse of a square matrix, Solutions of a system of linear equations by examples.
12	Compound and interest and annuities
13	Different types of interest Rates.
14	types of annuities, present value, and amount of an annuity.
15	problem relating to annuities and funds.