

### Summary of Lesson Plan

Name of College: GOVT. PG NEHRU COLLEGE, JHAJJAR

ACADEMIC SESSION:

For the Month of July - November

S. N.	Name of Assistant/ Associate Professor	SUBJECT/ CLASS/ SEMESTER	TOPIC/ Chapter to be covered
1	<b>Dr. Narinder Kumar</b> EXTENSION LECTURER Mathematics	<b>BSc. I</b> <b>Basic of Mathematics</b>	<p><b>July:</b></p> <p>Calculus: (Problems and theorems involving trigonometrically ratios are not to be done). Differentiation: Partial derivatives up to second order; Homogeneity of functions and Euler's theorem; total differentials. Differentiation of implicit function with the help of total differentials.</p> <p><b>August:</b></p> <p>Maxima and Minima: Cases of one variable involving second or higher order derivatives; Cases of two variables involving not more than one constraint. Integration: Integration as anti-derivative process; Standard forms; <b>Class Test</b></p> <p><b>September</b></p> <p>Methods of integration by substitution, by parts, and by use of partial fractions; Definite integration; Finding areas in simple cases. Consumers and producers surplus; Nature of Commodities learning Curve; Leontiff Input-Output Model. <b>Assignment 1</b></p> <p><b>October:</b></p> <p>Matrices: Definition of matrix; Types of matrices; Algebra of matrices. Determinants: Properties of determinants; calculation of values of determinants up to third order. <b>Assignment 2</b></p> <p><b>November:</b></p> <p>Adjoint of a matrix, through Adjoint and elementary row or column operations; Solution of system of linear equations having unique solution and involving not more than three variable</p>

S. N.	Name of Assistant Associate Professor	SUBJECT CLASS/ SEMESTER	TOPIC/ Chapter to be covered
1	<b>Dr. Narinder Kumar</b> EXTENSION LECTURER Mathematics	<b>BScI</b> Mathematical Programming in C and Numerical Methods	<p><b>July:</b></p> <p>Programmer's model of a computer. Algorithms. Flow charts. Data types. Operators and expressions. Input / Output functions. Decisions control structure: Decision statements.</p> <p><b>August:</b></p> <p>Logical and conditional statements. Implementation of Loops. Switch Statement &amp; Case control structures. Functions. Preprocessors and Arrays. Strings: Character Data Type. Standard String handling Functions. Arithmetic Operations on Characters. Assignment 1</p> <p><b>September:</b></p> <p>Structures: Definition, using Structures. use of Structures in Arrays and Arrays in Structures. Pointers: Pointers Data type. Pointers and Arrays. Pointers and Functions. Solution of Algebraic and Transcendental equations: Bisection method, Regula-Falsi method, Secant method. Class Test</p> <p><b>October</b></p> <p>Newton-Raphson's method. Newton's iterative method for finding <math>n</math>th root of a number. Order of convergence of above methods. Assignment 2</p> <p><b>November:</b></p> <p>Simultaneous linear algebraic equations: Gauss-elimination method, Gauss-Jordan method. Triangularization method (L.U decomposition method). Crout's method, Cholesky Decomposition method. Iterative method. Jacobi's method, Gauss-Seidal's method, Relaxation method.</p>

# LESSON PLAN

CLASS- B.Sc.Single Major

SEMESTER- 1st

Name of Extension lecturer :Narinder Kumar

Subject/Paper - Function and Algebra

Sr. No.	Duration	Subject Matter/ Syllabus
Unit-1	July-August	Relations, Functions along with domain and range, Composition of functions, Invertibility and inverse of functions, One-to-one correspondence and the cardinality of a set.
Unit-2	September	Section-II ( Theory of Equations) Relations between the roots and coefficients of general polynomial equation in one variable, Solutions of polynomial equations having conditions on roots, Common roots and multiple roots, Transformation of equations, Nature of the roots of an equation Descarte's rule of signs, Solutions of cubic equations (Cardon's method), Biquadratic equations and their solutions
Unit-3	October	Matrix and its types, Symmetric, Skew-symmetric, Hermitian and Skew Hermitian matrices, Unitary and Orthogonal Matrices, Idempotent, Involuntary, Nilpotent Matrices. Rank of a Matrix & its applications, Rank of a matrices, Row rank and column rank of a matrix, Elementary Operations on matrices, Inverse of a matrix , Normal Form, PAQ Form, Linear dependence and independence of rows and columns of matrices , Applications of matrices to a system of linear (both homogeneous and non homogeneous) equations, Theorems on consistency of a system of linear equations
Unit-4	November	Cayley Hamilton theorem, Eigenvalues, eigenvectors and the characteristic equation of a matrix, Minimal polynomial of a matrix, Cayley Hamilton theorem and its use in finding the inverse of a matrix, Diagonalization of matrix

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# LESSON PLAN

CLASS- B.A.

SEMESTER- 3<sup>rd</sup>Sem

Name of Extension lecturer :Narinder Kumar

Subject/Paper - Business Mathematics

Sr. No.	Duration	Subject Matter/ Syllabus
Unit-1	July-August	Linear Programming - Formulation of L.P.P: Graphical method of solution: Problems relating to two variables including case of mixed constraints: Cases having no solution, multiple solutions, unbounded solutions and redundant solutions.
Unit-2	September	Simplex Method - Solution of problems upto three variables, including cases of mixed constraints: Duality: Transportation Problems
Unit-3	October	Compound Interest : Certain different types of interest rates: Concept of present value and amount of a sum.
Unit-4	November	Cayley Hamilton theorem, Eigenvalues, eigenvectors and the characteristic equation of a matrix. Minimal polynomial of a matrix. Cayley Hamilton theorem and itsAnnuities: Types of annuities, Present value and amount of an annuity, including the case of continuous compounding, Valuation of simple loans and debentures, Problems related to sinking funds.use in finding the inverse of a matrix. Diagonalization of matrix

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