

LESSON PLAN

CLASS – Major Math, BA, BSc.

SEMESTER – 3rd

Name of Assistant / Associate – Chinky

Subject / Paper

– OPERATIONS RESEARCH TECHNIQUES. (SEC).

Unit	Month	Subject Matter / Syllabus
1	July. August	Definition, scope, methodology and applications of OR. Types of OR Models. Concept of optimization. Linear Programming: Introduction, formulation of LPP, Requirement for LPP. Advantages and limitations of LPP. Graphical solutions, infeasible solution.
2	September	Principle of simplex method: standard form, basic feasible solution. Computational Aspect of Simplex method. Case of unique feasible solution, degeneracy. Two phase and Big-M methods.
3	October	Duality, Primal dual relationship. Transportation Problem: methods related to transportation problem, transshipment problem, maximization in transportation problem.
4	November	Assignment Problem: Solution by Hungarian method, unbalanced assignment problem, maximization problem, Travelling salesman problem. Game Theory: Two person zero sum game. Game with saddle points. rule of dominance mixed strategy games.

Chinky

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LESSON PLAN

CLASS - B.Ca, BA

SEMESTER - 3rd

Name of Assistant / Associate - Chinky

Subject / Paper

- OPERATIONS RESEARCH (MFC)

Unit	Month	Subject Matter / Syllabus
1	July - August	Linear programming problems (LPP). Introduction, Mathematical formulation of LPP Graphical method to solve. Feasible region of LPP, unbounded solution of LPP. Canonical and standard form of LPP
2	September	Simplex Method: Basic and non-Basic variable. Optimality and unboundedness, Simplex method in tableau format. Artificial variable. Two phase and Big-M method. Degeneracy
3	October	Transportation Problem: Introduction, initial basic feasible. Solution by various methods. Optimization of MODI method. Unbalanced transportation problem and degeneracy.
4	November	Assignment Problem: Introduction to Assignment Problem. Mathematical formulation. Solution of Assignment Problem by Hungarian method.

Chinky

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GOVT. POST GRADUATE NEHRU COLLEGE, JHAJJAR

Lesson Plan Session- 2025-26

Name of Assistant Professor: Chinky

Class: M.Sc.(Mathematics) Semester: 3rd Subject: Fluid Dynamics

Month	Topic
August	Kinematics - Velocity at a point of a fluid. Eulerian and Lagrangian methods. Stream lines, path lines and streak lines. Velocity potential. Irrotational and rotational motions. Vorticity and circulation. Equation of continuity. Boundary surfaces. Acceleration at a point of a fluid. Components of acceleration in cylindrical and spherical polar co-ordinates.
September	Pressure at a point of a moving fluid. Euler equation of motion. Equations of motion in cylindrical and spherical polar co-ordinates. Bernoulli equation. Impulsive motion. Kelvin circulation theorem. Vorticity equation. Energy equation for incompressible flow. Kinetic energy of irrotational flow. Kelvin minimum energy theorem. Kinetic energy of infinite fluid. Uniqueness theorems.
October	Axially symmetric flows. Liquid streaming past a fixed sphere. Motion of a sphere through a liquid at rest at infinity. Equation of motion of a sphere. Kinetic energy generated by impulsive motion. Motion of two concentric spheres. Three-dimensional sources, sinks and doublets. Images of sources, sinks and doublets in rigid impermeable infinite plane and in impermeable spherical surface.
November	Two dimensional motion; Use of cylindrical polar co-ordinates. Stream function. Axisymmetric flow. Stoke stream function. Stoke stream function of basic flows. Irrotational motion in two-dimensions. Complex velocity potential. Milne-Thomson circle theorem. Twodimensional sources, sinks, doublets and their images. Blasius theorem

Chinky

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GOVT. POST GRADUATE NEHRU COLLEGE, JHAJJAR

Lesson Plan Session- 2024-25

Name of Assistant Professor: Chinky

Class: M.Sc.(Mathematics) Semester: 1st Subject: Mathematical Statistics

Month	Topic
August	Probability: Definition and various approaches of probability, Addition theorem, Boole inequality, Conditional probability and multiplication theorem, Independent events, Mutual and pairwise independence of events, Bayes theorem and its applications.
September	Random variable and probability functions: Definition and properties of random variables, Discrete and continuous random variables, Probability mass and density functions, Distribution function. Concepts of bivariate random variable: joint, marginal and conditional distributions. Mathematical expectation: Definition and its properties. Variance, Covariance, Moment generating function Definitions and their properties.
October	Discrete distributions: Uniform, Bernoulli, Binomial, Poisson and Geometric distributions with their properties. Continuous distributions: Uniform, Exponential and Normal distributions with their properties.
November	Testing of hypothesis: Parameter and statistic, Sampling distribution and standard error of estimate, Null and alternative hypotheses, Simple and composite hypotheses, Critical region, Level of significance, One tailed and two tailed tests, Two types of errors. Tests of significance: Large sample tests for single mean, Single proportion, Difference between two means and two proportions

Chinky

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