

## NCERT *Mathematics* 150-Day Lesson Plan

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### Lesson Distribution

| <b>Chapters</b>                    | <b>Topic Details</b>                                                                                                                                                                                                                                                             | <b>No. of classes</b> |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 1. Relation                        | Definition, Types of relation, Equivalence relation, Equivalence Class.                                                                                                                                                                                                          | 6                     |
| 2. Function                        | Types of functions, Composition of functions, Inverse functions.                                                                                                                                                                                                                 | 10                    |
| 3. Inverse Trigonometric functions | Definitions, Graphs, Domain & range, Properties, Formulae.                                                                                                                                                                                                                       | 7                     |
| 4. Matrices                        | Definition, Types of matrices, Operations of matrices, Invertible matrices.                                                                                                                                                                                                      | 9                     |
| 5. Determinants                    | Determinants of square matrices up to order $3 \times 3$ , properties, minors & cofactors, applications of determinants, Adjoint and inverse of a square matrix, Solutions of system of equations by matrix method.                                                              | 10                    |
| 6. Continuity & Differentiability  | Definition, Types of discontinuity, Algebra of continuity. Differentiability of functions                                                                                                                                                                                        | 8                     |
| 7. Method of differentiation       | Chain rule of differentiation, derivative of inverse trigonometric functions, Derivative of implicit functions, Concept of exponential & logarithmic functions and their derivatives, logarithmic differentiation, Derivative of parametric functions, Second order derivatives. | 15                    |
| 8. Application of derivatives      | Rate of change, Increasing & Decreasing functions, Maxima & Minima                                                                                                                                                                                                               | 17                    |
| 9. Integrals                       | Basics, Integration by substitution, Integration by Partial fraction, Integration by parts, Definite integrals.                                                                                                                                                                  | 27                    |
| 10. Application of Integrals       | Area under curve.                                                                                                                                                                                                                                                                | 8                     |
| 11. Vectors                        | Definition, Types of vectors, Position vector, Addition & subtraction of vectors, Direction cosines & direction ratios of vectors, Section formula, Dot product,                                                                                                                 |                       |

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|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
|                                | Projection of vector on another vector, Cross product of vectors, Angle between vectors.                                                                                                   | 6   |
| 12. Three-Dimensional geometry | Direction cosine & direction ratio of line joining two points, Cartesian & vector equation of line, Coplanar and skew lines, Angle between two lines, shortest distance between two lines. | 9   |
| 13. Linear Programing          | Constraints, objective function, feasible region, Corner points, optimization, formulation of LPP, Graphical solution of LPP in two variables.                                             | 6   |
| 14. Probability                | Conditional probability, Multiplication theorem of probability, total probability theorem, Bayes' theorem, Random variable & probability distribution.                                     | 12  |
| Total                          |                                                                                                                                                                                            | 150 |
| Chapter-wise revision          |                                                                                                                                                                                            |     |