UPSEE Syllabus for Mathematics

You can use the following reference books to cover Maths syllabus for UPTU SEE:

- **Algebra by M.L. Khanna**
- **Calculus and Analytic Geometry by G. N. Berman**
- **Calculus and Analytic Geometry by I. A. Maron**
- **Calculus and Analytic Geometry by M.L. Khanna**
- **Calculus and Analytic Geometry by Thomas And Finney**
- **Calculus by J. Edward by Loney**
- **Coordinate Geometry**
- **High School Mathematics by Hall And Knight**
- **Higher Algebra by Bernard & Child**
- **Maths XI & XII by R. S. Aggarwal**
- **Vectors by M.L. Khanna**

You need to cover following Physics topics and sub-topics for UPSEE:

Vectors: Algebra of vectors, scalar and vector products of two and three vectors and their applications.

Dynamics: Velocity, composition of velocity, relative velocity, acceleration, composition of accelerations, Motion under gravity, Projectiles, Laws of motion, Principles of conservation of momentum and energy, direct impact of smooth bodies

Co-ordinate Geometry: Pair of straight lines, Circles, General equation of second degree, parabola, ellipse and hyperbola, tracing of conics

Probability: Definition, Dependent and independent events, Numerical problem on addition and multiplication, theorem of probability.

Algebra: Sets relations & functions, De-Morgan's Law, Mapping Inverse relations, Equivalence relations, Peano's axioms, Definition of rationals and integers through equivalence relation, Indices and surds, Solutions of simultaneous and quadratic equations, A.P., G.P. and H.P., Special sums i.e. ;n2 and ;n3 (n;N), Partial fraction, Binomial theorem for any index, exponential series, Logarithm and Logarithmic series. Determinants and their use in solving simultaneous linear equations, Matrices, Algebra of matrices, Inverse of a matrix, Use of matrix for solving equations

Trigonometry: Identities**,** Trigonometric equations, properties of triangles, solution of triangles, heights and distances, Inverse function, Complex numbers and their properties, Cube roots of unity, De-Moivre's theorem.

Calculus: Limits & continuity of functions, Differentiation of function of function, tangents & normal, Simple examples of Maxima & Minima, Indeterminate forms, Integration of function by parts, by substitution and by partial fraction, definite integral, application to volumes and surfaces of frustums of sphere, cone and cylinder. Differential equations of first order and of first degree

Statics: Composition of coplanar, concurrent and parallel forces moments and couples resultant of set of coplanar forces and condition of equilibrium, determination of centroid in simple cases, Problems involving friction.