

# MPC Syllabus - TOSS and NIOS

## Telangana Open School Society (TOSS) - Intermediate MPC Syllabus

The Telangana Open School Society (TOSS) Intermediate MPC stream includes Mathematics, Physics, and Chemistry.

The syllabus is designed based on the Telangana State Intermediate Education curriculum, adapted for open learners.

Mathematics:

1. Sets, Relations, and Functions
2. Trigonometric Functions and Identities
3. Complex Numbers and Quadratic Equations
4. Sequences and Series
5. Straight Lines, Circles, and Conic Sections
6. Limits, Continuity, and Differentiation
7. Integration and Definite Integrals
8. Differential Equations and Applications
9. Vectors and Three-Dimensional Geometry
10. Probability, Statistics, and Linear Programming

Physics:

1. Units and Dimensions, Scalars and Vectors
2. Kinematics: Motion in One and Two Dimensions
3. Laws of Motion, Friction, Work, Power, and Energy
4. Circular Motion and Gravitation
5. Elasticity, Surface Tension, and Viscosity
6. Thermodynamics, Heat Transfer, and Expansion of Gases
7. Oscillations, Waves, and Sound
8. Optics: Reflection, Refraction, and Optical Instruments
9. Electrostatics, Current Electricity, and Magnetism
10. Electromagnetic Induction, Alternating Current
11. Modern Physics: Atoms, Nuclei, and Radioactivity

Chemistry:

1. Structure of Atom and Periodic Classification
2. Chemical Bonding and Molecular Structure
3. States of Matter and Gas Laws
4. Thermodynamics and Thermochemistry
5. Chemical Equilibrium and Ionic Equilibrium
6. Redox Reactions and Electrochemistry
7. Chemical Kinetics
8. Classification of Elements and Periodicity
9. Organic Chemistry: Hydrocarbons and Functional Groups
10. Environmental Chemistry and Practical Applications

### **National Institute of Open Schooling (NIOS) - Senior Secondary MPC Syllabus**

The National Institute of Open Schooling (NIOS) Senior Secondary level (equivalent to Intermediate MPC)

offers Mathematics (311), Physics (312), and Chemistry (313) as core subjects. The curriculum emphasizes conceptual understanding, experimentation, and practical applications.

Mathematics (311):

1. Sets, Relations, and Functions
2. Mathematical Induction and Complex Numbers
3. Quadratic Equations, Sequences, and Series
4. Permutations and Combinations
5. Binomial Theorem
6. Coordinate Geometry (Straight Lines, Circles, Parabolas, Ellipses, Hyperbolas)
7. Limits, Continuity, and Differentiability
8. Integration, Differential Equations, and Applications
9. Probability, Statistics, and Linear Programming
10. Vectors and Three-Dimensional Geometry

Physics (312):

1. Units, Dimensions, and Vector Quantities

2. Kinematics and Laws of Motion
3. Work, Energy, and Power
4. Gravitation and Planetary Motion
5. Properties of Matter and Mechanical Waves
6. Heat and Thermodynamics
7. Oscillations and Sound
8. Optics: Ray and Wave Optics
9. Electrostatics, Electric Current, and Magnetism
10. Electromagnetic Induction and Alternating Current
11. Modern Physics: Atomic Structure and Nuclear Physics

Chemistry (313):

1. Some Basic Concepts of Chemistry
2. Structure of Atom and Classification of Elements
3. Chemical Bonding and Molecular Structure
4. States of Matter and Thermodynamics
5. Equilibrium and Redox Reactions
6. Chemical Kinetics and Electrochemistry
7. Organic Chemistry: Hydrocarbons, Alcohols, Aldehydes, Ketones, Carboxylic Acids
8. Coordination Compounds
9. Environmental Chemistry
10. Biomolecules and Polymers

*Note: These syllabi are summarized from official TOSS and NIOS materials. For detailed subject-wise modules, refer to the respective official websites.*