D2D Entrance Exam – Detailed Roadmap + Full Syllabus + Tracker

SECTION 1: Full Syllabus (Math • Physics • Chemistry)

MATHEMATICS

- AP/GP/HP, nth term, sum, Σn^2, Σn^3
- Quadratic Equations, Roots & Coefficients
- Logarithms, Laws, Applications
- Partial Fractions (proper + improper)
- Determinants (2×2, 3×3), Cramer's Rule
- Matrices (types, operations, inverse, adjoint)
- Binomial Theorem: expansion, middle term, general term
- Trigonometry: ratios, identities, allied angles
- Compound angles, multiple/submultiple angles
- Inverse Trigonometric Functions
- Coordinate Geometry: distance, section, midpoint, triangle
- Straight line: forms, slope, intercept, angle
- Circle: standard & general form
- Vectors: dot product, cross product
- Limits & Continuity (all standard limits)
- Differentiation: all formulas, chain rule, implicit, log
- Applications: maxima-minima, tangent-normal, rate of change
- Radius of Curvature, increasing/decreasing functions

PHYSICS

- Units & Measurements, Errors, Dimensions
- Kinematics: velocity, acceleration, Newton Laws
- Work, Power, Energy, Pulley & Lift
- SHM, Angular Motion
- Elasticity, Hooke’s law
- Viscosity, Surface tension, Capillarity
- Thermal expansion, Heat Transfer (C, C, R)
- Thermodynamics: laws & applications
- Sound, Acoustics, Sabine’s Formula
- Optics: reflection, refraction, lenses, mirrors
- Optical instruments
- Electric Field, Potential, Gauss Law
- Current Electricity, Resistances, Kirchhoff’s Laws
- Magnetism, Electromagnetism
- Semiconductors, Zener, PN junction
- Photoelectric Effect, X-rays, Lasers

CHEMISTRY

- Atomic Structure: quantum numbers, Bohr model
- Electrochemistry: conductance, cells
- Water Technology: hardness, softening methods
- Metallurgy: ores, extraction, steel process

- Alloys: types & properties
- Corrosion: types, prevention
- Paints & Varnishes
- Lubricants: types & viscosity
- Polymers, Plastics, Rubber
- Glass, Ceramics
- Pollution: air, water, control

SECTION 2: Detailed 6-Month Roadmap

Month 1

- Math: AP/GP/HP, Σn^2, Σn^3, Quadratic basics, Logs, Simple partial fractions
- Physics: Units, Dimensions, Kinematics, Newton Laws
- Chemistry: Atomic structure, Basic metallurgy

Month 2

- Math: Determinants, Matrices, Cramer's Rule, Binomial Theorem
- Physics: Work-Power-Energy, SHM, Elasticity
- Chemistry: Water technology, Hardness, Electrochemistry

Month 3

- Math: Full Trigonometry + Inverse Trigo
- Physics: Viscosity, Surface tension, Heat expansion
- Chemistry: Alloys, Lubricants, Polymers

Month 4

- Math: Coordinate Geometry, Limits, Continuity, Differentiation
- Physics: Thermodynamics + Heat Transfer
- Chemistry: Paints, Varnishes, Plastics

Month 5

- Math: Applications of Derivatives (max/min, tangent-normal)
- Physics: Optics, Electricity, Magnetism
- Chemistry: Pollution, environmental chemistry
- Mock Tests: 2 per week

Month 6

- Full Revision + Speed Training
- 3 Mock Tests/week
- 100 MCQs/week
- All formulas revised

SECTION 3: Final Exam Checklist

- Complete Maths (Algebra → Trigo → Coordinate → Calculus)
- Complete Physics (Mechanics → Heat → Optics → Electricity → Modern)
- Complete Chemistry (Atomic → Water → Metallurgy → Polymers → Pollution)
- All Formulas Revised Twice
- 15–20 Mock Tests Completed
- 1500+ MCQs Solved
- Mistake Notebook Complete
- Previous Year Papers Done

SECTION 4: Chapter-Wise Progress Tracker (Printable Table)

Subject	Chapter	Done (✓)	Revised (✓)	Notes Done (✓)
MATHEMATICS	AP/GP/HP, nth term, sum, Σn^2, Σn^3			
MATHEMATICS	Quadratic Equations, Roots & Coefficients			
MATHEMATICS	Logarithms, Laws, Applications			
MATHEMATICS	Partial Fractions (proper + improper)			
MATHEMATICS	Determinants (2×2, 3×3), Cramer's Rule			
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MATHEMATICS	Vectors: dot product, cross product			
MATHEMATICS	Limits & Continuity (all standard limits)			
MATHEMATICS	Differentiation: all formulas, chain rule, implicit, log			
MATHEMATICS	Applications: maxima-minima, tangent-normal, rate of change			
MATHEMATICS	Radius of Curvature, increasing/decreasing functions			
PHYSICS	Units & Measurements, Errors, Dimensions			
PHYSICS	Kinematics: velocity, acceleration, Newton Laws			
PHYSICS	Work, Power, Energy, Pulley & Lift			
PHYSICS	SHM, Angular Motion			
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PHYSICS	Viscosity, Surface tension, Capillarity			
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CHEMISTRY	Electrochemistry: conductance, cells			
CHEMISTRY	Water Technology: hardness, softening methods			
CHEMISTRY	Metallurgy: ores, extraction, steel process			
CHEMISTRY	Alloys: types & properties			
CHEMISTRY	Corrosion: types, prevention			
CHEMISTRY	Paints & Varnishes			
CHEMISTRY	Lubricants: types & viscosity			
CHEMISTRY	Polymers, Plastics, Rubber			
CHEMISTRY	Glass, Ceramics			
CHEMISTRY	Pollution: air, water, control			