SuccessClap
Best Coaching for UPSC Mathematics

22 Weeks Study Plan for UPSC Mathematics

- Follow this Plan to finish Syllabus in 22 Weeks.

- Everyday 4-5 Hours must be dedicated to cover the topics.

- Stick to the Plan : Example-> Linear Algebra must be finished in 2 weeks.

- Do Easy things First. Do Tough Topics like Modern Algebra, Statics, Dynamics in Last.

- UPSC Maths Syllabus in Limited. So, Identify the Pattern and Plan it accordingly.

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	Linear Algebra and Matrix:
	Week 1, 2:
1	Introduction :Algebra of Matrices; Row and column reduction, , congruence's and similarity; Symmetric, skew-symmetric, Hermitian, skew-Hermitian, orthogonal and unitary matrices.
2	Rank of a matrix, Echelon form, Normal Form, Inverse of a matrix
3	Solution of system of linear equations
4	Eigenvalues and eigenvectors, characteristic polynomial,
5	Diagonisable, Cayley Hamilton Theorem. Quadratic Form, Index Signature
6	Practice from Krishna Series – Eigen Values, Linear Eqns , Orthogonal
7	Practice from Krishna Series – Quadratic, Similarity of Matrices, Diagonalisation
8	Vector spaces Definition and problems
9	Subspaces, Bases, Dimension
10	Linear transformations, rank and nullity,
11	LT Isomorphism, Singular, Inveribles
12	matrix of a linear transformation, Bases Change

1	Bisection, Newton Raphson, Regula falsi
2	Newton Forward , Backward Tabulation, Derivation and Error of Lagrange Interpolation
3	Derivation and Error finding of Trapezoid, Simpson
4	ODE Euler, RK method
5	Linear Equation, Gauss Jordan, Siedel., Errors
6	Boolean algebra problems practise
7	Algorithm and Flow charts
	Vector Analysis
	Week 4,
1	Gradient, Divergence, Curl in all Cordinate system,
2	Vector Identities Problems
3	Line Integrals, Green Theorem, Surface Integrals
4	Gauss Divergence, Stokes's thm Problems,
5	Curves in spaces, tangent, normal eqns ,
6	Curvature , Torsion, Serret Ferret Formula
	ODE
	Week 5,6,
1	Formation,lintegarting factors
2	Eqn of 1st Order
3	Trajectory
4	P X Y Solvable
5	Claurit, Singular Soln
6	Linear Differential eqns with Const Coeff
7	Cauchy Euler Eqn
8	Method of Variation of parametrs
9	Simultaneous Differential Eqn
10	Linear Eqn Order 2
11	Normal, Variable Transformation

12	Laplace Transform
13	Inverse Laplace Transform
14	Application of Laplace to ODE
	Partial Differential Eqns
	Week 7,8
1	Formation of PDE and examples
2	Linear PDE Order 1
3	Non Linear PDE ,Charpit method
4	Standard form Solns
5	Jacobi , Cauchy Strip
6	Homogeneous Linear PDE const coeff
7	Non Homogeneous PDE
8	Euler Cauchy Methods
9	Canonical Forms
10	Boundary Value Problems, Heat Eqn
11	Wave Eqn
12	Laplace
13	Polar Sysytem,
14	Cylindrical, Spherical Syytem
	Calculus and Real Analysis:
	Week 9,10,11
1	Limits , Continuity
2	Differentiability and Problems
3	Mean Value theorem
4	Indeterminate form Problems
5, 6	Max min- Lagrange and 2Dimension
7	Jacobians
8	Asymptotes, Partial Derivative
9	Riemann Definitions
10	Theorem and Problems on Riemann
11,12	Improper Integrals
13,14	Sequences Basic

15,16	Series Problems
17	Uniform Convergence
18	Uniform Convergence- Continuity, Differentiability, Integrability Problems
19	Multiple Integrals
20	Double and Triple integrals , Areas
21	Surface , Volumes
22	Beta Gamma Functions
23	Integration under Differentiation sign
	Complex Analysis:
	Week 12,
1	Analytic functions
2,3	Complex Integral
4	Laurent, Taylor Series
5	Singularities, Power Series, Meromorphic functions
6,7	Residue Theorem, Contour Integration
	Analytic Geometry:
	Week 13,14 :
1	Intro, Direction Cosines, Projections
2	Planes
3	Straight Lines
4	Straight Lines
5	Shortest Distance, Tetrahedron,
6	Skew Lines,
7	Spheres,Cylinder
8	Cones,
9	Cental Conicoid
10	Central Conicoid
11	Cental Conicoid
12	Paraboloid
13	Generating Lines
14	Generating Lines

	Linear Programming
	Week 15
1	Definitions,
2	Graphical Methods
3,4	Simplex Methods Practise and Duality
5,6	Assignment Problems
7,8	Transportation Problems
	Mechanics
	Week 16:
1	Moment of inertia,
2	Lagrange Problems 1
3	Lagrange Problems 2
4	Hamilton Problems 1
5	Hamilton Problems 2
6	D Alembert's principle
7	Motion of rigid bodies in two dimensions. (Selected problems only)
8	Motion in 2D(Selected Problems Only)
	Fluid Dynamics
	Week 17,18 :
1	Kinematics, Lagrange , Velocity, Continuity
2	Boundary Conditions,
3	Path Line, Velocity Potential
4	Euler Eqns
5	Impulse Motion, energy Conservation
6	Bernaui Eqns
7	Stream Fns, Source Sink
8	Source Sink, Circle Images
9	Irrotational Motion
10	Navier Stoke Eqns
11	Laminar Flow

1	Intro, Binary Operations, Group
2	Subgroups and Problems
3	Cyclic Subgroups
4	Cosets
5	Normal Subgroups and Problems
6	Homomorphism and its theorems
7	Permutation Group
8	Sylow Theorem Problems
9	Rings and Sub Rings
10	Ideals , Quotient Rings
11	Ring Homomorphism, Embedding
12	Maximal Ideals, Prime Ideals
13	ED, PID
14	UFD, Eisenstein's criteria.
	Here we will understand the basic concept thoroughly, Do Important Theorems and Important Problems only. This is a Ocean, so we will limit ourself with important things only.
	Dynamics
	Week 21
1	Basic Concept, Rectilinear motion
2	SHM
3	Projectiles
4	Plane Kinematics
5	Central Orbits
6	Planetary Motion
7	Constrained motion in Plane
8	Constrained motion in Circle
9	Motion in Resisting Medium

	Statics
	Week 22
1,2	Principle of Virtual work
3,4	Stability , UnStability Problems
5	Equilibrium
6,7	Catenary Problems

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