

Lesson plan

Name: Reshu Arora

Subject: Mathematics

Lesson plan: nov 21 to feb 22

month	b.sc,b.a 1 st year (1 st sem) calculus	b.sc,b.a 2 nd year (3 rd sem)statics	b.sc,b.a 3 rd year (5 th sem)real analysis	Bba 1 st year (1 st sem)business mathematics
November	definition of the limit of a function. Basic properties of limits, Continuous functions and classification of discontinuities. Differentiability. Successive differentiation. Leibnitz theorem. Maclaurin and Taylor series expansions.	Composition and resolution of forces. Parallel forces. Moments and Couples Analytical conditions of equilibrium of coplanar forces	Riemann integral, Integrability of continuous and monotonic functions, The Fundamental theorem of integral calculus. Mean value theorems of integral calculus. Improper integrals and their convergence, Comparison tests, Abel's and Dirichlet's tests, Frullani's integral, Integral as a function of a parameter.	Set theory, logical statement and truth values.
december	Asymptotes in Cartesian coordinates, intersection of curve and its asymptotes, asymptotes in polar coordinates. Curvature, radius of curvature for Cartesian curves, parametric curves, polar curves. Newton's method. Radius of curvature for pedal curves. Tangential polar equations. Centre of curvature. Circle of curvature. Chord of curvature, evolutes. Tests for concavity and convexity. Points of inflexion. Multiple points. Cusps, nodes & conjugate points. Type of cusps	.Friction. Centre of Gravity. Virtual work. Forces in three dimensions	Continuity,Differentiability and integrability of an integral of a function of a parameter.	Limit and continuity , differential calculus
january	Tracing of curves in Cartesian, parametric and polar co-ordinates. Reduction formulae.	Poinsots central axis. Wrenches. Null lines and planes	Definition and examples of metric spaces, neighborhoods, limit points, interior points, open and closed sets, closure	Matrices, inverse of matrices.

	Rectification, intrinsic equations of curve.		and interior, open and closed sets, closure and interior, boundary points, subspace of a metric space, equivalent metrics, Cauchy sequences, completeness, Cantor's intersection theorem, Baire's category theorem, contraction Principle	
february	Quadrature (area)Sectorial area. Area bounded by closed curves. Volumes and surfaces of solids of revolution. Theorems of Pappu's and Guilden.	Stable and Unstable Equilibrium.	Continuous functions, uniform continuity, compactness for metric spaces, sequential compactness, Bolzano-Weierstrass property, total boundedness, finite intersection property Continuity in relation with compactness, connectedness, components, continuity in relation with connectedness.	