

Lesson Plan: Bachelor of Commerce Aided: 2025–2026
Sem(II). MDC
Theory – Mathematical Reasoning

Sr. No.	Unit	Lesson Plan	Months
1.	Unit-I	Analogy, Classification, Series Completion, Coding, Decoding, Blood relation, Puzzle Test, Sequential output tracing, Logical Venn Diagram.	January
2.	Unit-II	Alphabet Test, Number, Ranking and Time sequence test, Mathematical operation, Logical sequence and Word, Arithmetical Reasoning.	February
3.	Unit-III	Data Interpolation and Reasoning: Tabulation, Bar Graphs, Line Graphs, Pie Chart, Venn Diagrams, Analytical Reasoning, Mirror images.	March-April
4.	Unit-III	Data Interpolation and Reasoning: Tabulation, Bar Graphs, Line Graphs, Pie Chart, Venn Diagrams, Analytical Reasoning, Mirror images.	March-April

LESSON PLAN: BACHELOR OF COMPUTER APPLICATION (SFS): 2025–2026
SEM (II), I

THEORY – MATHEMATICAL FOUNDATIONS TO COMPUTER SCIENCE – II

Sr. No.	Unit	Lesson Plan	Months
1.	UNIT-I	LOGIC AND METHODS OF PROOFS: PROPOSITION, LOGICAL OPERATIONS, CONSTRUCTION OF TRUTH TABLE, QUANTIFIERS, CONDITIONAL STATEMENTS, TAUTOLOGY, CONTRADICTION, CONTINGENCY, LOGICAL EQUIVALENCE, CONJUNCTIVE NORMAL (RNF) (CNF) AND DISJUNCTIVE NORMAL FORM (DNF), METHODS OF PROOFS: RULE OF INFERENCE FOR PROPOSITIONAL LOGIC, MODUS PONENS, MODUS TOLLENS, SYLLOGISM, PROOF BY CONTRADICTION, MATHEMATICAL INDUCTION.	JANUARY
2.	UNIT-II	ALGEBRAIC STRUCTURES: SEMI-GROUP, MONOID, GROUP, SUBGROUP, CYCLIC GROUP.	FEBRUARY
3.	UNIT-III	NUMERICAL METHODS; CONCEPT AND IMPORTANCE OF ERROR IN NUMERICAL METHODS, SOLUTION OF ALGEBRAIC AND TRANSCENDENTAL EQUATIONS: BISECTION METHOD AND NEWTON RAPHSON METHOD. NUMERICAL INTERPOLATION: NEWTON'S FORWARD AND LAGRANGE'S FORMULA.	MARCH
4.	UNIT-IV	OPTIMIZATION TECHNIQUES: LINEAR PROGRAMMING, TRANSPORTATION PROBLEM.	APRIL

Dr. Pinki Sharma
Assistant Professor,
Department of Mathematics

Lesson Plan: Bachelor of Science (SFS): 2025–2026

Sem (II), MDC

Theory – Mathematical Reasoning

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Department of Mathematics

Lesson Plan: Bachelor of Science (SFS) : 2025–20265-2026
Sem (VI)
Theory - Dynamics

Sr. No.	Unit	Lesson Plan	Months
1.	Unit-I	Velocity and acceleration along radial, Transverse, Tangential and Normal directions. Relative velocity and acceleration. Simple harmonic motion. Elastic strings.	January
2.	Unit-II	Mass, Momentum and Force. Newton's laws of motion. Work, Power and Energy. Definitions of Conservative forces and Impulsive forces.	February
3.	Unit-III	Motion on smooth and rough plane curves. Projectile motion of a particle in a plane. Vector angular velocity.	March
4.	Unit-IV	General motion of a rigid body. Central Orbits, Kepler laws of motion. Motion of a particle in three dimensions. Acceleration in terms of different co-ordinate systems	April

Lesson Plan: Bachelor of Science (SFS): 2025–2026

Sem (II). MDC

Theory – Mathematical Reasoning

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Sem(II). MDC
Theory – Mathematical Reasoning

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Sr. No.	Unit	Lesson Plan: Bachelor of Science: 2025-2026 Sem(II) -Calculus		Months
		Theory	Practical	
1.	Unit-1	Limit and Continuity ($\epsilon - \delta$ definition), Discontinuity & its types, Differentiability of the functions, Successive differentiation, Leibnitz rule and its applications, L' Hospital's rule: Indeterminate forms. Taylor's theorem with Lagrange's and Cauchy's forms of remainders, Maclaurin's and Taylor's series expansions	1. Study of Concavity, Convexity and point of inflexion using graph (i) $f(x) = (x - \alpha)(x - \beta)$ (ii) $f(x) = (x - \alpha)(x - \beta)(x - \gamma)$ (iii) $f(x) = x - \alpha (x - \beta)$ (iv) $f(x) = \frac{x+1}{x^2+3}$ 2. Plotting of graphs of the function $\sin(ax+b)$, $\cos(ax+b)$, $\sinh(ax+b)$, $\cosh(ax+b)$ for various values of a and b. 3. Plotting of graphs of the function e^{ax+b} , $\log(ax+b)$, $\frac{c}{ax+b}$, C^{ax+b} for various values of a, b and c. 4. Sketching parametric curves (E.g. Trochoid, Cycloid, Epicycloids, Hypocycloid).	January
2.	Unit-II	Tangent and Normal, Asymptotes of Curves in Cartesian and polar co-ordinates, Curvature, Radius of Curvature for Cartesian curves, parametric, polar and pedal form of curves, Circle of Curvature, Chord of Curvature. Concavity, Convexity and Inflexion points.	5. Determine Asymptotes in Curve using graphs: (i) $\frac{1}{x-3}$, (ii) $y = \tan x$, (iii) $y = e^{\frac{1}{x}}$, (iv) $y = x + \frac{1}{x}$, (v) $y = \frac{x^2 + 2x - 1}{x}$	February
3.	Unit-III	Tracing of curves in Cartesian, parametric and polar co-ordinates of Standard curves (Cubic curves, Semicubical Parabola, Folium of Descartes, Cardioid, Lemniscate of Bernoulli, Astroid, Rose curve, Logarithmic Spiral,	6. Form the table for Sine function, Cosine function for 0° , 1° , 2° ,....., 90° using Maclaurin's series expansion. 7. Plotting the graphs of polynomials of degree 2, 3, 4 and 5, the derivative graph, second derivative graph and comparing them.	March

		Epispiral, Cycloid, Catenary).		
4.	Unit-IV	Functions of Several Variables, Limits and Continuity, Partial Differentiation and Euler's theorem on homogenous functions, Chain rule, Directional derivatives, Gradient vector and Tangent Plane.	8. Trace the curves (i) $y^2(a^2+x^2)=x^2(a^2-x^2)$ (ii) $a^2 y^2=a^2 s^4-x^6$ 10. Sketching parametric curves (E.g. Trochoid, Cycloid, Epicycloids, Hypocycloid, Catenary) 13. Sketching Polar Curves (Cardioid, Astroid, Rose Curve, Logarithmic spiral).	April

Sr. No.	Unit	Lesson Plan: Bachelor of Science: 2025-2026 Sem (IV)	Months
		Theory-Real Analysis	
1.	Unit-1	Finite and infinite sets, Countable and uncountable sets, Bounded sets, Suprema and infima, Completeness property of $\mathbb{R}$, Archimedean property of $\mathbb{R}$.	January
2.	Unit-II	Riemann integral, Integrability of continuous and monotonic functions, Fundamental theorem of integral calculus. Mean value theorems of integral calculus.	February
3.	Unit-III	Improper integrals and their convergence, Comparison tests, Abel's and Dirichlet's tests, Frullani's integral, Integral as a function of a parameter. Continuity, Differentiability and integrability of an integral of a function of a parameter.	March
4.	Unit-IV	Jacobians, Beta and Gamma functions, Double and Triple integrals, Dirichlet's integrals, Change of order of integration in double integrals.	April

Sr. No.	Unit	Lesson Plan: Bachelor of Science: 2025-2026 Sem (VI)	Months
		Theory- Real and Complex Analysis	
1.	Unit-1	Jacobians, Beta and Gamma functions, Double and Triple integrals, Dirichlet's integrals, Change of order of integration in double integrals.	January
2.	Unit-II	Fourier's series: Fourier expansion of piecewise monotonic functions, Properties of Fourier coefficients, Dirichlet's Conditions, Parsval's identity for fourier series, Fourier series for even and odd functions, half range series, Change of Intervals.	February
3.	Unit-III	Extended complex plane, Steriographic Projection of Complex Numbers, Continuity and Differentiability of Complex functions, Analytic functions, Cauchy- Riemann Equations, Harmonic functions.	March
4.	Unit-IV	Mappings by elementary functions: Translation, Rotation, Magnification and inversion, Conformal Mappings, Mobius Transformations, Fixed Points, Cross Ratio, Inverse Points and Critical mappings.	April

