

		DYAL SINGH COLLEGE, KARNAL
		Lesson Plan for Odd Semesters
		Algebra (BM-111)
		B.A /B.Sc. Sem 1
		Department of Mathematics
2020-21		
Nov 2-7,2020	Symmetric, Skew symmetric, Hermitian and skew Hermitian matrices. Elementary Operations on matrices.	
Nov 9-14,2020	Rank of a matrices. Inverse of a matrix	
Nov. 16-21,2020	Ch. Equation of Matrix,	
Nov. 23-28,2020	Linear dependence and independence of rows and columns of matrices. Row rank and column rank of a matrix	
Nov 30- Dec. 5,2020	Eigenvalues, eigenvectors and the characteristic equation of a matrix. Minimal polynomial of a matrix.	
Dec 7-12,2020	Cayley Hamilton theorem and its use in finding the inverse of a matrix.	
Dec. 14-19,2020	Applications of matrices to a system of linear (both homogeneous and non-homogeneous) equations Theorems on consistency of a system of linear equations.	
Dec 21-26, 2020	Unitary and Orthogonal Matrices, Bilinear and Quadratic forms.	
Dec. 28 2020-Jan 2,2021	Transformation of equation	
Jan 4-9,2021	Relations between the roots and coefficients of general polynomial equation in one variable ,Solutions of polynomial equations having conditions on roots	
Jan. 11-16,2021	Common roots and multiple roots, Transformation of equations.	
Jan 18-23, 2021	Nature of the roots of an equation,Descarte's rule of signs.	
Jan 25-30, 2021	Solutions of cubic equations (Cardon's method)	
Feb 1-6, 2021	Biquadratic equations and their solutions.	
Feb 8-13,2021	Problems discussed relevant to syllabus	
Feb 15-20, 2021	Revision of syllabus, Unit Test	
		B.A/ B.Sc. – Ist Year (Semester – I)
		BM – 112 : Calculus
2020-21		
Nov 2-7,2020	Definition of the limit of a function. Basic properties of limits, Continuous functions and classification of discontinuities.	
Nov 9-14,2020	Differentiability, Successive differentiation, Leibnitz theorem	
Nov. 16-21,2020	Maclaurin and Taylor series expansions.	
Nov. 23-28,2020	Asymptotes in Cartesian coordinates, Intersection of	

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	curve and its asymptotes	
Nov 30- Dec. 5,2020	Asymptotes in polar coordinates, Curvature, radius of curvature for Cartesian curves,	
Dec 7-12,2020	Newton's method, Radius of curvature for pedal curves, Tangential polar equations.	
Dec. 14-19,2020	Centre of curvature. Circle of curvature,Chord of curvature, Evolutes.	
Dec 21-26, 2020	Tests for concavity and convexity. Points of inflexion. Multiple points.	
Dec. 28 2020-Jan 2,2021	Cusps, nodes & conjugate points, Type of cusps.	
Jan 4-9,2021	Tracing of curves in Cartesian, parametric and polar co-ordinates.	
Jan. 11-16,2021	Reduction formulae,Rectification.	
Jan 18-23, 2021	Rectification(continued), intrinsic equations of curve,	
Jan 25-30, 2021	Quadrature (area)Sectorial area,Area bounded by closed curves	
Feb 1-6, 2021	Volumes and surfaces of solids of revolution.Theorems of Pappu's and Guilden.	
Feb 8-13,2021	Revision and unit test	
Feb 15-20, 2021	Revision	
	B.A./B.Sc.– Ist Year (Semester – I)	
	BM – 113 : Solid Geometry	
2020-21		
Nov 2-7,2020	General equation of second degree.	
Nov 9-14,2020	Tracing of conics	
Nov. 16-21,2020	Tangent at any point to the conic, chord of contact,	
Nov. 23-28,2020	Pole of line to the conic, director circle of conic. System of conics.	
Nov 30- Dec. 5,2020	Confocal conics, Polar equation of a conic, tangent and normal to the conic.	
Dec 7-12,2020	Sphere: Plane section of a sphere.	
Dec. 14-19,2020	Sphere through a given circle, Intersection of two spheres, radical plane of two spheres.	
Dec 21-26, 2020	Co-oxal system of spheres	
Dec. 28 2020-Jan 2,2021	Cones. Right circular cone.	
Jan 4-9,2021	Enveloping cone and reciprocal cone.	
Jan. 11-16,2021	Cylinder: Right circular cylinder and enveloping cylinder	
Jan 18-23, 2021	Central Conicoids: Equation of tangent plane	
Jan 25-30, 2021	Director sphere, Normal to the conicoids.	
Feb 1-6, 2021	Polar plane of a point, Enveloping cone of a coinoid	
Feb 8-13,2021	Enveloping cylinder of a coinoid.	
Feb 15-20, 2021	Generating lines, Confocal conicoid, Reduction of second degree equations, Revision and unit test	
	B.A./B.Sc- IIInd Year (Semester-III)	

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BM-231 Advanced Caclulus	
2020-21	
Nov 2-7,2020	Continuity, Sequential Continuity, properties of continuous functions, Uniform continuity
Nov 9-14,2020	Chain rule of differentiability, Mean value theorems
Nov. 16-21,2020	Rolle's Theorem and Lagrange's mean value theorem and their geometrical interpretations.
Nov. 23-28,2020	Taylor's Theorem with various forms of remainders, Darboux intermediate value theorem for derivatives
Nov 30- Dec. 5,2020	Indeterminate forms.
Dec 7-12,2020	Limit and continuity of real valued functions of two variables, Partial differentiation, Total Differential, Composite functions & implicit functions
Dec. 14-19,2020	Change of variables, Homogenous functions & Euler's theorem on homogeneous functions.
Dec 21-26, 2020	Differentiability of real valued functions of two variables, Schwarz and Young's theorem
Dec. 28 2020-Jan 2,2021	Implicit function theorem, Maxima, Minima and saddle points of two variables
Jan 4-9,2021	Lagrange's method of multipliers.
Jan. 11-16,2021	Curves: Tangents, Principal normals, Binormals, Serret-Frenet formulae, Locus of the centre of curvature
Jan 18-23, 2021	Spherical curvature, Locus of centre of Spherical curvature,
Jan 25-30, 2021	Involutes, evolutes, Bertrand Curves, Surfaces: Tangent planes, one parameter family of surfaces, Envelopes.
Feb 1-6, 2021	Revision and unit test
Feb 15-20, 2021	Revision
B.A./B.Sc.- 2nd Year (Semester3)	
BM – 232 : Partial Differential Equation	
2020-21	
Nov 2-7,2020	Formation of partial differential equation,
Nov 9-14,2020	Linear and Non-Linear Partial Differential Equation
Nov. 16-21,2020	Complete solution, singular solution
Nov. 23-28,2020	General solution, Solution of Lagrange's linear equations,
Nov 30- Dec. 5,2020	Charpit's general method of solution, Compatible systems of first order equations, Jacobi's method.
Dec 7-12,2020	Linear partial differential equations of second and higher orders,
Dec. 14-19,2020	Linear and non-linear homogeneous and non-homogeneous equations with constant coefficients, Partial differential equations with variable coefficients reducible to equations with constant coefficients, their complimentary functions and particular Integrals

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	value theorems of integral calculus.	
Nov. 23-28,2020	Improper integrals and their convergence	
Nov 30- Dec. 5,2020	Abel's and Dirichlet's tests,	
Dec 7-12,2020	Frullani's integral, Integral as a function of a parameter	
Dec. 14-19,2020	Differentiability and integrability of an integral of a function of a parameter.	
Dec 21-26, 2020	Definition and examples of metric spaces,neighborhoods, limit points	
Dec. 28 2020-Jan 2,2021	Interior points, open and closed sets,	
Jan 4-9,2021	Closure and interior, boundary points, subspace of a metric space	
Jan. 11-16,2021	Equivalent metrics, Cauchy sequences	
Jan 18-23, 2021	Completeness, Cantor's intersection theorem, Baire's category theorem, contraction Principle	
Jan 25-30, 2021	Continuous functions, uniform continuity	
Feb 1-6, 2021	Sequential compactness, Bolzano-Weierstrass property,continuity in relation with connectedness.	
Feb 8-13,2021	Revision and unit test	
Feb 15-20, 2021	Revision	
	B.A./B.Sc.3rd Year (Semester 5th)	
	BM -352 : Groups and Rings	
	2020-21	
Nov 2-7,2020	Definition of a group with example and simple properties of groups	
Nov 9-14,2020	Subgroups and Subgroup criteria	
Nov. 16-21,2020	Generation of groups, cyclic groups	
Nov. 23-28,2020	Cosets, Left and right cosets, Index of a sub-group	
Nov 30- Dec. 5,2020	Coset decomposition, Langrange's theorem and its consequences	
Dec 7-12,2020	Normal subgroups, Quotient groups	
Dec. 14-19,2020	Homomorphisms, isomorphisms	
Dec 21-26, 2020	Automorphisms and inner automorphisms of a group	
Dec. 28 2020-Jan 2,2021	Automorphisms of cyclic groups	
Jan 4-9,2021	Permutations groups,Even and oddpermutations,Alternating groups	
Jan. 11-16,2021	Cayley's theorem, Center of a group and derived group of a group.	
Jan 18-23, 2021	Introduction to rings, subrings, integral domains and fields	
Jan 25-30, 2021	Characteristics of a ring, Ring homomorphisms, ideals	
Feb 1-6, 2021	Euclidean rings, Polynomial rings, Polynomials over the rational field	
Feb 8-13,2021	Unique factorization domain, R unique factorization domain implies so is $R[X_1, X_2, \dots, X_n]$	

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Feb 15-20, 2021	Revision and unit test	
	B.A./B.Sc.3rd Year (Semester 5th) BM –353 : Numerical Analysis	
2020-21		
Nov 2-7,2020	Finite Differences operators and their relations. Finding the missing terms and effect of error in a difference tabular values	
Nov 9-14,2020	Interpolation with equal intervals: Newton's forward and Newton's backward interpolation formulae.	
Nov. 16-21,2020	Interpolation with unequal intervals: Newton's divided difference	
Nov. 23-28,2020	Lagrange's Interpolation formulae, Hermite Formula.	
Nov 30- Dec. 5,2020	Central Differences: Gauss forward and Gauss's backward interpolation formulae, Sterling, Bessel Formula.	
Dec 7-12,2020	Probability distribution of random variables, Binomial distribution,	
Dec. 14-19,2020	Poisson's distribution, Normal distribution: Mean, Variance and Fitting.	
Dec 21-26, 2020	Numerical Differentiation: Derivative of a function using interpolation formulae as studied in Sections –I,II	
Dec. 28 2020-Jan 2,2021	Eigen Value Problems: Power method, Jacobi's method, Given's method, HouseHolder's method, QR method, Lanczos method.	
Jan 4-9,2021	Numerical Integration: Newton-Cote's Quadrature formula, Trapezoidal rule, Simpson's one- third and three-eighth rule	
Jan. 11-16,2021	Single step methods, Picard's method, Taylor's series method, Euler's method, Runge-Kutta Methods.	
Jan 18-23, 2021	Multiple step methods; Predictor-corrector method,	
Jan 25-30, 2021	Modified Euler's method, Milne-Simpson's method.	
Feb 1-6, 2021	Revision and unit test	
Feb 8-13,2021	Revision and unit test	
Feb 15-20, 2021	Revision	
	Lesson plan for even semester B.A./B.Sc. IstYear (Semester 2nd) BM –121 : Number Theory and Trigonometry	
Even Sem		
2020-21		
April 15-17, 2021	Divisibility, G.C.D.(greatest common divisors), L.C.M.(least common multiple)	
April 19-24,2021	Fundamental Theorem of Arithmetic.	
April 26- May 1,2021	Linear Congruences, Fermat's theorem.	

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May 3-8 ,2021	Wilson's theorem and its converse.
May 10-15,2021	Linear Diophantine equations in two variables
May 17-22,2021	Complete residue system and reduced residue system modulo m , Euler function Euler's generalization of Fermat's theorem
May 24-29,2021	Chinese Remainder Theorem, Quadratic residues, Legendre symbols.
May 31- June 5,2021	Lemma of Gauss, Gauss reciprocity law. Greatest integer function $[x]$.
June 7-12,2021	The number of divisors and the sum of divisors of a natural number n (The functions $d(n)$ and $s(n)$). Moebius function and Moebius inversion formula.
June 14-19, 2021	De Moivre's Theorem and its Applications.
June 21-26,2021	Expansion of trigonometrical functions, Direct circular and hyperbolic functions and their properties.
June 28- July 3,2021	Inverse circular and hyperbolic functions and their properties.
July 5-10,2021	Gregory's series,Summation of Trigonometry series
	B.A./B.Sc. IstYear (Semester 2nd) BM –122:Ordinary Differential Equations
Even Sem	
2020-21	
April 15-17, 2021	Geometrical meaning of a differential equation. Exact differential equations
April 19-24,2021	Integrating factors, First order higher degree equations
April 26- May 1,2021	Solvable for x, y, p Lagrange's equations
May 3-8 ,2021	Clairaut's equations, Equation reducible to Clairaut's form. Singular solutions.
May 10-15,2021	Orthogonal trajectories: in Cartesian coordinates and polar coordinates
May 17-22,2021	Self orthogonal family of curves, Linear differential equations with constant coefficients.
May 24-29,2021	Homogeneous linear ordinary differential equations,Equations reducible to homogeneous
May 31- June 5,2021	Linear differential equations of second order: Reduction to normal form.
June 7-12,2021	Transformation of the equation by changing the dependent variable/ the independent variable
June 14-19, 2021	Solution by operators of non-homogeneous linear differential equations.
June 21-26,2021	Reduction of order of a differential equation, Method of variations of parameters,Method of undetermined coefficients.
June 28- July 3,2021	Ordinary simultaneous differential equations. Solution of simultaneous differential equations involving

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	operators $\times (d/dx)$ or $t (d/dt)$ etc
July 5-10,2021	Simultaneous equation of the form $dx/P = dy/Q = dz/R$. Total differential equations. Condition for $Pdx + Qdy + Rdz = 0$ to be exact
	B.A./B.Sc. IstYear (Semester 2nd) BM –123:Vector Calculus
Even Sem	
2020-21	
April 15-17, 2021	Scalar and vector product of three vectors
April 19-24,2021	Product of four vectors, Reciprocal vectors.
April 26- May 1,2021	Vector differentiation Scalar Valued point functions,
May 3-8 ,2021	Vector valued point functions, derivative along a curve, directional derivatives
May 10-15,2021	Gradient of a scalar point function, geometrical interpretation of grad F
May 17-22,2021	character of gradient as a point function
May 24-29,2021	Divergence and curl of vector point function, characters of Div f and Curl f as point function, examples.
May 31- June 5,2021	Gradient, divergence and curl of sums and product and their related vector identities.
June 7-12,2021	Orthogonal curvilinear coordinates, Conditions for orthogonality fundamental triad of mutually orthogonal unit vectors
June 14-19, 2021	Gradient, Divergence, Curl and Laplacian operators in terms of orthogonal curvilinear coordinates
June 21-26,2021	Cylindrical co-ordinates and Spherical coordinates.
June 28- July 3,2021	Vector integration; Line integral, Surface integral, Volume integral
July 5-10,2021	Theorems of Gauss, Green & Stokes
	B.A./B.Sc. 2ndYear (Semester 4th) BM –241:Sequence and Series
Even Sem	
2020-21	
April 15-17, 2021	Boundedness of the set of real numbers; least upper bound, greatest lower bound of a set
April 19-24,2021	Neighborhoods, interior points, isolated points, limit points
April 26- May 1,2021	Open sets, closed set, interior of a set, closure of a set in real numbers and their properties.
May 3-8 ,2021	Bolzano- Weiestrass theorem, Open covers, Compact sets and Heine-Borel Theorem
May 10-15,2021	Sequence: Real Sequences and their convergence

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May 17-22,2021	Theorem on limits of sequence, Bounded and monotonic sequences, Cauchy's sequence
May 24-29,2021	Cauchy general principle of convergence, Subsequences, Subsequential limits.
May 31- June 5,2021	Infinite series: Convergence and divergence of Infinite Series, Comparison Tests of positive terms Infinite series
June 7-12,2021	Cauchy's general principle of Convergence of series Convergence and divergence of geometric series
June 14-19, 2021	Infinite series: D-Alembert's ratio test, Raabe's test
June 21-26,2021	Logarithmic test, de Morgan and Bertrand's test.
June 28- July 3,2021	Cauchy's Nth root test, Gauss Test, Cauchy's integral test , Cauchy's condensation test ,Alternating series, Leibnitz's test, absolute and conditional convergence.
July 5-10,2021	Arbitrary series: Abel's lemma, Abel's test, Dirichlet's test, Insertion and removal of parenthesis , Dirichlet's theorem, Riemann's Re-arrangement theorem, Pringsheim's theorem
	B.A./B.Sc. 2ndYear (Semester 4th) BM –242:Special Functions and Integral Transforms
Even Sem	
2020-21	
April 15-17, 2021	Power series method
April 19-24,2021	Definitions of Beta and Gamma functions, Bessel equation and its solution
April 26- May 1,2021	Convergence, recurrence, Relations and generating functions, Orthogonality of Bessel functions.
May 3-8 ,2021	Legendre and Hermite differentials equations and their solutions:
May 10-15,2021	Legendre and Hermite functions and their properties- Recurrence Relations and generating functions
May 17-22,2021	Orthogonality of Legendre and Hermite polynomials. Rodrigues' Formula for Legendre & Hermite Polynomials
May 24-29,2021	Laplace Integral Representation of Legendre polynomial.
May 31- June 5,2021	Laplace Transforms – Existence theorem for Laplace transforms
June 7-12,2021	Shifting theorems, Laplace transforms of derivatives and integrals
June 14-19, 2021	Convolution theorem, Inverse Laplace transforms, convolution theorem
June 21-26,2021	Inverse Laplace transforms of derivatives and integrals
June 28- July 3,2021	Fourier transforms: Linearity property, Shifting, Modulation, Convolution
July 5-10,2021	Fourier Transform of Derivatives, Relations between

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	Fourier transform and Laplacetransform ,Parseval's identity for Fourier transforms	
	B.A./B.Sc. 2ndYear (Semester 4th)	
	BM –243: Programming in C & Numerical Methods	
Even Sem		
2020-21		
April 15-17, 2021	Programmer's model of a computer	
April 19-24,2021	Algorithms, Flow charts, Data types	
April 26- May 1,2021	Operators and expressions, Input / outputs functions.	
May 3-8 ,2021	Decisions control structure: Decision statements	
May 10-15,2021	Implementation of Loops, Switch Statement & Case control structures	
May 17-22,2021	Functions, Preprocessors and Arrays.	
May 24-29,2021	Strings: Character Data Type, Standard String handling Functions	
May 31- June 5,2021	Arrays in Structures. Pointers: Pointers Data type Pointers and Arrays, Pointers and Functions.	
June 7-12,2021	Bisection method,	
June 14-19, 2021	Regula-Falsi method, Secant method	
June 21-26,2021	Newton-Raphson's method, Newton's iterative method for finding pth root of a number	
June 28- July 3,2021	Order of convergence of above methods.	
July 5-10,2021	Gauss-elimination method, Gauss-Jordan method, Triangularization method (LU decomposition method), Crout's method, Cholesky Decomposition method.	
	B.A./B.Sc. 3rdYear (Semester 6th)	
	BM –361 Real and complex Analysis	
Even Sem		
2020-21		
April 15-17, 2021	Jacobians, Beta and Gama functions	
April 19-24,2021	Double and Triple integrals	
April 26- May 1,2021	Dirichlet's integrals, change of order of integration in double integrals.	
May 3-8 ,2021	Fourier's series: Fourier expansion of piecewise monotonic functions, Properties of Fourier Coefficients	
May 10-15,2021	Dirichlet's conditions, Parseval's identity for Fourier series	
May 17-22,2021	Fourier series for even and odd functions, Half range series, Change of Intervals.	
May 24-29,2021	Extended Complex Plane, Stereographic projection of complex numbers	
May 31- June	continuity and differentiability of complex functions,	

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5,2021	Analytic functions	
June 7-12,2021	Cauchy-Riemann equations. Harmonic functions.	
June 14-19, 2021	Mappings by elementary functions:	
June 21-26,2021	Translation, rotation, Magnification and Inversion.	
June 28- July 3,2021	Conformal Mappings	
July 5-10,2021	Mobius transformations, Fixed points, Cross ratio, Inverse Points and critical mappings, Fixed points, Cross ratio	
	B.A./B.Sc. 3rdYear (Semester 6th)	
	BM –362 Linear Algebra	
Even Sem		
2020-21		
April 15-17, 2021	Vector spaces, subspaces, Sum and Direct sum of subspaces,	
April 19-24,2021	Linear span, Linearly Independent and dependent subsets of a vector space	
April 26- May 1,2021	Finitely generated vector space, Existence theorem for basis of a finitely generated vector space	
May 3-8 ,2021	Finite dimensional vector spaces, Invariance of the number of elements of basis sets	
May 10-15,2021	Dimensions, Quotientspace and its dimension.	
May 17-22,2021	Homomorphism and isomorphism of vector spaces, Linear transformations and linear forms on vector spaces	
May 24-29,2021	Dual Spaces, Bidual spaces, Annihilator of subspaces of finite dimensional vector spaces	
May 31- June 5,2021	Null Space, Range space of a linear transformation, Rank and Nullity Theorem	
June 7-12,2021	Minimal Polynomial of a linear transformation, Singular and non-singular linear transformations	
June 14-19, 2021	Matrix of a linear Transformation, Change of basis, Eigen values and Eigen vectors of linear transformations	
June 21-26,2021	Inner product spaces, Cauchy-Schwarz inequality	
June 28- July 3,2021	Orthogonal vectors, Orthogonal complements, Orthogonal sets and Basis	
July 5-10,2021	Bessel's inequality for finite dimensional vector spaces, Gram-Schmidt Orthogonalization process, Adjoint of a linear transformation, Unitary linear transformations	
	B.A./B.Sc. 3rdYear (Semester 6th)	
	BM –363 Dynamics	
Even Sem		
2020-21		

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April 15-17, 2021	Velocity and acceleration along radial, transverse
April 19-24,2021	Tangential and normal directions
April 26- May 1,2021	Relative velocity and acceleration.
May 3-8 ,2021	Simple harmonic motion. Elastic strings.
May 10-15,2021	Mass, Momentum and Force
May 17-22,2021	Newton's laws of motion.
May 24-29,2021	Work, Power and Energy.
May 31- June 5,2021	Definitions of Conservative forces and Impulsive forces
June 7-12,2021	Motion on smooth and rough plane curves
June 14-19, 2021	Projectile motion of a particle in a plane.
June 21-26,2021	Vector angular velocity
June 28- July 3,2021	General motion of a rigid body
July 5-10,2021	Central Orbits,Kepler laws of motion,Motion of a particle in three dimensions.

	DYALSINGHCOLLEGE, KARNAL
	LessonPlanforOddSemester
	BC-105, BUSINESSMATHEMATICS-I
	B.ComSemester-1 (Gen/Hons.)
	DepartmentofMathematics
2020-21	
Nov 2-7,2020	Logarithms, Anti-logarithms.
Nov 9-14,2020	Sequences and Series: Arithmetic progression
Nov.16-21,2020	Geometric Progressions
Nov.23-28,2020	Differentiation: Idea of simple derivative of different functions
Nov30-Dec. 5,2020	Rules of differentiation (simple standard forms).
Dec7-12,2020	Maxima and Minima of functions of one variable relating to cost
Dec.14-19,2020	Maxima and Minima of functions of one variable relating to revenue and profit.
Dec 21-26,2020	Matrices and Determinants: concept of matrix, types, and algebra of matrices
Dec.28 2020-Jan 2,2021	Properties of determinants
Jan4-9,2021	Adjoint of a matrix, elementary row or column operations

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Jan.11-16,2021	Finding inverse of a matrix through adjoint
Jan18-23,2021	Solution of a system of linear equations having unique solution
Jan25-30,2021	Compound Interest
Feb1-6,2021	Annuities: different types of interest rates, concept of present value and amount of a sum
Feb8-13,2021	Valuation of simple loans and debentures; problems relating to sinking funds
Feb15-20,2021	Revision

	B.Com 2nd Sem. General /Hons.BC-205 BUSINESS MATHEMATICS-II
Even Sem 2020-21	
April15-17,2021	Permutations and Combinations
April19-24,2021	Binomial Theorem
April26-May 1,2021	Linear inequalities: graphical solution of linear inequalities in two variables
May3-8,2021	Solution of system of linear inequalities in two variables
May10-15,2021	Graphical method of solution
May17-22,2021	Problems relating to two variables including the case of mixed constraints
May24-29,2021	Multiple solutions, unbounded solution and redundant constraints.
May31-June 5,2021	Data representation and interpretation: introduction, classification and tabulation of data
June 7-12,2021	Diagrammatic and graphic representation of data
June 14-19,2021	Significance of diagrams and graphs,
June 21-26,2021	Types of diagrams: bar diagram
June28-July 3,2021	Types of diagrams: pie chart, pictographs, graphs of time series, Line graphs, graphs of frequency distribution
July5-10,2021	Histogram, frequency polygon, Ogives or cumulative frequency curves, limitations of diagrams and graphs

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		DYALSINGHCOLLEGE, KARNAL
		LessonPlanforOddSemester
		BCA-115 Mathematical Foundations – I
		BCA (First sem.)
		DepartmentofMathematics
2020-21		
Nov 2-7,2020	Set, subsets and operations on sets	
Nov 9-14,2020	Venn diagram of sets	
Nov.16-21,2020	Power set of a set Equivalence relation on a set and partition of a set	
Nov.23-28,2020	Permutation and combinations,	
Nov30-Dec. 5,2020	Partially ordered sets, Lattices (definition and examples)	
Dec7-12,2020	Boolean algebra (definition and examples)	
Dec.14-19,2020	Epsilon and delta definition of the continuity of a function of a single variable	
Dec 21-26,2020	Basic properties of limits	
Dec.28 2020-Jan 2,2021	Continuous functions and classifications of discontinuities	
Jan4-9,2021	Derivative of a function, Derivatives of Logarithmic	
Jan.11-16,2021	Formation of differential equations order and degree of the differential equation,	
Jan18-23,2021	Geometrical approach to the existence of the solution of the differential equation	
Jan25-30,2021	Ordinary differential equations of first degree and the first order, exact differential equations	
Feb1-6,2021	Linear differential equations of higher order with constant coefficients	
Feb8-13,2021	Applications of differential equations to geometry	
Feb15-20,2021	revision and unit test	

		BCA – 124
		Mathematical Foundation(II)
		Second semester
Even Sem		
2020-21		

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April 15-17, 2021	Propositions and logical operators, Truth tables and propositions generated by a set
April 19-24, 2021	Equivalence and implications, Laws of logic
April 26-May 1, 2021	Mathematical system, Proposition over a universe
May 3-8, 2021	Mathematical induction, Quantifiers
May 10-15, 2021	Binary operations on a non empty set,
May 17-22, 2021	Groups, Subgroups, Normal Subgroups, Cosets, Factor groups
May 24-29, 2021	Rings, Sub rings, Ideals, Factor rings, Prime ideals, Minimal ideal, Fields, direct product of groups
May 31-June 5, 2021	Isomorphism of groups and rings
June 7-12, 2021	Addition and multiplication of matrices, Laws of matrix algebra
June 14-19, 2021	Singular and non singular matrices, Inverse of a matrix
June 21-26, 2021	Rank of a matrix, Rank of the product of two matrices, Characteristic equations of a square matrix,
June 28-July 3, 2021	Cayley-Hamilton Theorem, Eigen values and eigen vectors
July 5-10, 2021	Eigen values and eigen vectors of symmetric skew symmetric, Hermitian and skew – Hermitian matrices, Diagonalization of a square matrix

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