DYAL SINGH COLLEGE, KARNAL

Lesson Plan (2023-24) ODD Semester

Class: B.Phy.Sc. Sem 1
Subject: Mathematics
Paper: Calculus
Course Code: B23- MAT101

Week 1 (July 24-29)	**Not for PG**
Week 2 (August 1-5)	ε-δ definition of limit and continuity of a real valued function, Basic properties of limits,
Week 3 (August 7-12)	Types of discontinuities, Differentiability of functions, Application of L'Hospital rule to indeterminate forms,
Week 4 (August 14-18)	Successive differentiation
Week 5 (August 21-26)	Leibnitz theorem. Taylor's and Maclaurin's series expansion with different forms of remainder.
Week 6 (August 28- September 2)	Asymptotes: Horizontal, vertical
Week 7 (September 4 -9)	oblique asymptotes for algebraic curves, Asymptotes for polar curves
Week 8 (September 11 -16)	Intersection of a curve and its asymptotes
Week 9 (September 18 -22)	Curvature and radius of curvature of curves (cartesian, parametric, polar & intrinsic forms)
Week 10 (September 25 -30)	Newton's method, Centre of curvature and circle of curvature
Week 11 (October 3-7)	Multiple points, Node, Cusp, Conjugate point, Tests for concavity and convexity. Points of inflexion
Week 12 (October 9-14)	Tracing of curves, Reduction formulae. Rectification,
Week 13 (October 16 - 21)	intrinsic equation of a curve. Quadrature.
Week 14 (October 23-31)	Area bounded by closed curves, Volumes and surfaces of solids of revolution.
Week 15 (November 2-9)	Sessional Exams
Week 16 (November 10-16)	Diwali Break
November 17	Sessional MDC
November 18	Revision / Distribution of sessional exams answer sheets
Week 17 (November 20-24)	Revision of syllabus
Week 18 (November 28-December 2)	PG only
Week 19 (December 4- 6)	PG only

DYAL SINGH COLLEGE, KARNAL

Lesson Plan (2023-24) EVEN Semester

Class: B.Phy. Sciences 2nd Sem.
Subject: mathematics
Course/Paper: Algebra and Number Theory
Course Code: B23-MAT-201

Week 1 (January 1-6)	Symmetric, Skew symmetric, Hermitian and skew Hermitian matrices, Elementary operations on matrices,
Week 2 (January 8-13)	Rank of a matrix, Inverse of a matrix, Linear dependence and independence of rows and columns of matrix,
Week 3 (January 15-20)	Row rank and column rank of a matrix, Eigen values, Eigen vectors and characteristic equation of a matrix
Week 4 (January 22-27)	Minimal polynomial of a matrix, Cayley-Hamilton theorem and its use in finding the inverse of a matrix
Week 5 (January 29- February 3)	Unitary and orthogonal matrices. Relations between the roots and coefficients of general polynomial equation in one variable,
Week 6 (February 5-10)	Solutions of polynomial equations having conditions on roots,Common roots and multiple roots,
Week 7 (February 12-17)	Transformation of equations Nature of the roots of an equation
Week 8 (February 19-23)	Descarte's rule of signs Solutions of cubic equations (Cardon's method)
Week 9 (February 26 March 2)	Biquadratic equations and their solutions. Divisibility,
Week 10 (March 4-9)	Greatest common divisor (gcd), Least common multiple (lcm), Prime numbers,
Week 11 (March 11-16)	Fundamental theorem of arithmetic. Linear congruences,
Week 12 (March 18-22)	Fermat's theorem ,Euler's theorem, Wilson's theorem and its converse,
Week 13 (March 23-31)	Holi Break
Week 14 (April 1-6)	Chinese Remainder theorem
Week 15 (April 8-13)	Linear Diophantine equations in two variables.
Week 16 (April 15-20)	Revision of syllabus
Week 17 (April 22- 30)	Revision of syllabus

DYAL SINGH COLLEGE, KARNAL

Lesson Plan (2023-24) ODD Semester

Class: B.Com. First Sem

Subject: Mathematics

Course/Paper: Business Mathematics-1

Course Code: B23-COM-104

Week 1 (July 24-29)	**Not for PG**
Week 2 (August 1-5)	Set Theory: Representation of sets, equivalent sets, power set, complement of a set. Venn Diagrams: Union and intersection of sets, De-Morgan's laws;
Week 3 (August 7-12)	Logical statements and truth tables
Week 4 (August 14-18)	Logarithms: Laws of operation
Week 5 (August 21-26)	log tables.
Week 6 (August 28- September 2)	Arithmetic progression
Week 7 (September 4 -9)	Geometric progression
Week 8 (September 11 -16)	Matrices and Determinants: Definition of a matrix, order, equality, types of matrices; Operations on matrices:
Week 9 (September 18 -22)	Addition, multiplication and multiplication with a scalar and their simple properties. Determinant of a square matrix (upto 3x 3 order):
Week 10 (September 25 -30)	Properties of determinants, minors, co-factors and applications of determinants in finding the area of triangle
Week 11 (October 3-7)	adjoint and inverse of a square matrix,
Week 12 (October 9-14)	solutions of a system of linear equations by examples. Compound interest and annuities.
Week 13 (October 16 - 21)	Different types of interest rates, types of annuities,
Week 14 (October 23-31)	present value and amount of an annuity (including the case of continuous compounding). valuation of simple loans and debentures,
Week 15 (November 2-9)	Sessional Exams
Week 16 (November 10-16)	Diwali Break
November 17	Sessional MDC
November 18	Revision / Distribution of sessional exams answer sheets
Week 17 (November 20-24)	problems related to sinking funds
Week 18 (November 28- December 2)	PG only
Week 19 (December 4- 6)	PG only

DYAL SINGH COLLEGE, KARNAL

Lesson Plan (2023-24) EVEN Semester

Class: B.Com. 2nd Sem

Subject: Mathematics

Course/Paper: Business Mathematics-II

Course Code : B23-COM-204

Week 1 (January 1-6)	Differentiation; derivative of simple functions and other functions (excluding trigonometric functions) having applications in business studies;
Week 2 (January 8-13)	Maxima and minima of Revenue
Week 3 (January 15-20)	Cost, Demand, Production, Profit functions and other functions related to business and commerce.
Week 4 (January 22-27)	Integration: Definite and indefinite (simple functions excluding trigonometric functions),
Week 5 (January 29- February 3)	basic rules of integration, application of integration in commercial and business problems.
Week 6 (February 5-10)	Binomial Theorem
Week 7 (February 12-17)	Permutations
Week 8 (February 19-23)	Combinations
Week 9 (February 26 March 2)	Linear programming: Formulation of linear programming problems (LPP)
Week 10 (March 4-9)	solution of linear programming problems (LPP) by graphical method
Week 11 (March 11-16)	solution of linear programming problems (LPP) by graphical method
Week 12 (March 18-22)	solution of linear programming problems (LPP) by simplex method
Week 13 (March 23-31)	Holi Break
Week 14 (April 1-6)	solution of linear programming problems (LPP) by simplex method
Week 15 (April 8-13)	Applications of linear programming in solving problems related to business and commerce.
Week 16 (April 15-20)	Applications of linear programming in solving problems related to business and commerce.
Week 17 (April 22- 30)	Revision of syllabus

	DYAL SINGH COLLEGE, KARNAL
	BCA Lesson Plan for FIRST Semester
	Mathematical Foundations – I (B23-CAP-104)
Week 1 (July 24-29)	Sets and their representations, Empty set, Finite and infinite sets, Subsets, Equal sets
Week 2 (August 1-5)	Power sets, Universal set, Union and intersection of sets, Difference of two sets, Complement of a set, Venn diagram, De-Morgan's laws and their applications.
Week 3 (August 7-12)	An introduction to matrices and their types, Operations on matrices, Symmetric and skew-symmetric matrices, Minors, Co-factors
Week 4 (August 14-18)	Determinant of a square matrix, Adjoint and inverse of a square matrix,
Week 5 (August 21-26)	Solutions of a system of linear equations up to order 3.
Week 6 (August 28-September 2)	Quadratic equations, Solution of quadratic equations. Arithmetic progression,
Week 7 (September 4-9)	Geometric progression, Harmonic progression,
Week 8 (September 11 -16)	Arithmetic mean (A.M.),
Week 9 (September 18 -22)	Geometric mean (G.M.),
Week 10 (September 25 -30)	Harmonic mean (H.M.),
Week 11 (October 3-7)	Relation between A.M., G.M. and H.M.
Week 12 (October 9-14)	The concept of differentiation, differentiation of simple functions
Week 13 (October 16 - 21)	Use of differentiation for solving problems related to real-life situations
Week 14 (October 23-31)	Differentiation of simple algebraic, trigonometric and exponential functions
Week 15 (November 2-9)	Sessional Exams
Week 16 (November 10-16)	Diwali Break
November 17	Sessional MDC
November 18	Revision / Distribution of sessional exams answer sheets
Week 17 (November 20-24)	**Revision and discussion.**

	Lesson plan for ODD Sem (2023-24)
	B.A/B.Sc- IInd Year (Semester-III)
	BM-231 Advanced Calculus
Week 1 (July 24-29)	Continuity, Sequential Continuity, properties of continuous functions, Uniform continuity
Week 2 (August 1-5)	Chain rule of differentiability, Mean value theorems
Week 3 (August 7-12)	Rolle's Theorem and Lagrange's mean value theorem and their geometrical interpretations.
Week 4 (August 14-18)	Taylor's Theorem with various forms of remainders, Darboux intermediate value theorem for derivatives
Week 5 (August 21-26)	Indeterminate forms.
Week 6 (August 28-September 2)	Limit and continuity of real valued functions of two variables. Partial differentiation, Total Differentials; Composite functions & implicit functions
Week 7 (September 4 -9)	Change of variables, Homogenous functions & Euler's theorem on homogeneous functions.
Week 8 (September 11 -16)	Differentiability of real valued functions of two variables. Schwarz and Young's theorem
Week 9 (September 18 -22)	Implicit function theorem. Maxima, Minima and saddle points of two variables
Week 10 (September 25 -30)	Lagrange's method of multipliers.
Week 11 (October 3-7)	Curves: Tangents, Principal normal, Binomals, Serret-Frenet formulae. Locus of the centre of curvature
Week 12 (October 9-14)	Spherical curvature, Locus of centre of Spherical curvature,
Week 13 (October 16 - 21)	Involutes, evolutes, Bertrand Curves.
Week 14 (October 23-31)	Surfaces: Tangent planes, one parameter family of surfaces, Envelopes
Week 15 (November 2-9)	Sessional Exams
Week 16 (November 10-16)	Diwali Break
November 17	Revision
November 18	Revision / Distribution of sessional exams answer sheets
Week 17 (November 20-24)	Revision and Discussion

	B.A./B.Sc.- 2nd Year (Semester3) **BM – 232 : Partial Differential Equation**
Week 1 (July 24-29)	Formation, order and degree of partial differential equation
Week 2 (August 1-5)	Linear and Non-Linear Partial Differential Equation
Week 3 (August 7-12)	Complete solution, singular solution
Week 4 (August 14-18)	General solution, Solution of Lagrange's linear equations,
Week 5 (August 21-26)	Charpit's general method of solution, Compatible systems of first order equations, Jacobi's method.
Week 6 (August 28-September 2)	Linear partial differential equations of second and higher orders,
Week 7 (September 4 -9)	Linear and non-linear homogeneous and non-homogeneous equations with constant coefficients, Partial differential equation with variable coefficients reducible to equations with constant coefficients, their complimentary functions and particular Integrals
Week 8 (September 11 -16)	Equations reducible to linear equations with constant coefficients.
Week 9 (September 18 -22)	Classification of linear partial differential equations of second order, Hyperbolic,
Week 10 (September 25 -30)	Classification of linear partial differential equations of second order, parabolic and elliptic types
Week 11 (October 3-7)	Solution of linear hyperbolic equations, Monge's method for partial differential equations of second order.
Week 12 (October 9-14)	Cauchy' s problem for second order partial differential equations, Characteristic equations and characteristic curves of second order partial differential equation
Week 13 (October 16 - 21)	Method of separation of variables: Solution of Laplace's equation, wave equation
Week 14 (October 23-31)	Diffusion (Heat) equation (one and two dimension)
Week 15 (November 2-9)	Sessional Exams
Week 16 (November 10-16)	Diwali Break
November 17	Revision
November 18	Revision / Distribution of sessional exams answer sheets
Week 17 (November 20-24)	Revision and Discussion

	B.A./B.Sc.- 2nd Year (Semester3) **BM – 233 : Statics**
Week 1 (July 24-29)	Composition and resolution of forces
Week 2 (August 1-5)	Parallel forces
Week 3 (August 7-12)	Moments
Week 4 (August 14-18)	Couples.
Week 5 (August 21-26)	Analytical conditions of equilibrium of coplanar forces.
Week 6 (August 28-September 2)	Friction.
Week 7 (September 4 -9)	Centre of Gravity.
Week 8 (September 11 -16)	Virtual work.
Week 9 (September 18 -22)	Forces in three dimensions.
Week 10 (September 25 -30)	Poinsots central axis.
Week 11 (October 3-7)	Wrenches.
Week 12 (October 9-14)	Null lines and planes.
Week 13 (October 16 - 21)	Null lines and planes.
Week 14 (October 23-31)	Stable and unstable equilibrium
Week 15 (November 2-9)	Sessional Exams
Week 16 (November 10-16)	Diwali Break
November 17	Revision
November 18	Revision / Distribution of sessional exams answer sheets
Week 17 (November 20-24)	Revision and Discussion
	B.A./B.Sc.3rd Year (Semester 5th) **BM –351 : Real Analysis**
Week 1 (July 24-29)	Riemann integral
Week 2 (August 1-5)	Integrabililty of continuous and monotonic functions
Week 3 (August 7-12)	The Fundamental theorem of integral calculus. Mean value theorems of integral calculus.
Week 4 (August 14-18)	Improper integrals and their convergence
Week 5 (August 21-26)	Abel's and Dirichlet's tests,
Week 6 (August 28-September 2)	Frullani's integral, Integral as a function of a parameter

Week 7 (September 4 -9)	Differentiability and integrability of an integral of a function of a parameter.
Week 8 (September 11 -16)	Definition and examples of metric spaces, neighborhoods, limit points
Week 9 (September 18 -22)	Interior points, open and closed sets,
Week 10 (September 25 -30)	Closure and interior, boundary points, subspace of a metric space,
Week 11 (October 3-7)	Equivalent metrics, Cauchy sequences,
Week 12 (October 9-14)	Completeness, Cantor's intersection theorem, Baire's category theorem, contraction Principle
Week 13 (October 16 - 21)	Continuous functions, uniform continuity
Week 14 (October 23-31)	Sequential compactness, Bolzano-Weierstrass property, continuity in relation with connectedness
Week 15 (November 2-9)	Sessional Exams
Week 16 (November 10-16)	Diwali Break
November 17	Revision
November 18	Revision / Distribution of sessional exams answer sheets
Week 17 (November 20-24)	Revision and Discussion
	B.A./B.Sc.3rd Year (Semester 5th) **BM –352 : Groups and Rings**
Week 1 (July 24-29)	Definition of a group with example and simple properties of groups
Week 2 (August 1-5)	Subgroups and Subgroup criteria
Week 3 (August 7-12)	Generation of groups, cyclic groups,
Week 4 (August 14-18)	Cosets, Left and right cosets, Index of a sub-group
Week 5 (August 21-26)	Coset decomposition, Langrange's theorem and its consequences,
Week 6 (August 28-September 2)	Normal subgroups, Quotient groups,
Week 7 (September 4 -9)	Homomorphisms, isomophisms
Week 8 (September 11 -16)	Automorphisms and inner automorphisms of a group
Week 9 (September 18 -22)	Automorphisms of cyclic groups,
Week 10 (September 25 -30)	Permutations groups, Even and odd permutations, Alternating groups
Week 11 (October 3-7)	Cayley's theorem, Center of a group and derived group of a group.

Week 12 (October 9-14)	Introduction to rings, subrings, integral domains and fields,
Week 13 (October 16 - 21)	Characteristics of a ring. Ring homomorphisms, ideals
Week 14 (October 23-31)	Euclidean rings, Polynomial rings, Polynomials over the rational field, Unique factorization domain, R unique factorization domain implies so is R[X1 , X2……Xn]
Week 15 (November 2-9)	Sessional Exams
Week 16 (November 10-16)	Diwali Break
November 17	Revision
November 18	Revision / Distribution of sessional exams answer sheets
Week 17 (November 20-24)	Revision and Discussion
	B.A./B.Sc.3rd Year (Semester 5th) **BM –353 : Numerical Analysis**
Week 1 (July 24-29)	Finite Differences operators and their relations. Finding the missing terms and effect of error in a difference tabular values
Week 2 (August 1-5)	Interpolation with equal intervals: Newton's forward and Newton's backward interpolation formulae.
Week 3 (August 7-12)	Interpolation with unequal intervals: Newton's divided difference
Week 4 (August 14-18)	Lagrange's Interpolation formulae, Hermite Formula.
Week 5 (August 21-26)	Central Differences: Gauss forward and Gauss's backward interpolation formulae, Sterling, Bessel Formula.
Week 6 (August 28-September 2)	Probability distribution of random variables, Binomial distribution,
Week 7 (September 4 -9)	Poisson's distribution, Normal distribution: Mean, Variance and Fitting.
Week 8 (September 11 -16)	Numerical Differentiation: Derivative of a function using interpolation formulae as studied in Sections –I & II.
Week 9 (September 18 -22)	Eigen Value Problems: Power method, Jacobi's method, Given's method, Householder's method, QR method, Lanczos method.
Week 10 (September 25 -30)	Numerical Integration: Newton-Cote's Quadrature formula, Trapezoidal rule, Simpson's one- third and three-eighth rule
Week 11 (October 3-7)	Single step methods, Picard's method. Taylor's series method, Euler's method, Runge-Kutta Methods.
Week 12 (October 9-14)	Multiple step methods; Predictor-corrector method,
Week 13 (October 16 - 21)	Modified Euler's method,

Week 14 (October 23-31)	Milne-Simpson's method
Week 15 (November 2-9)	Sessional Exams
Week 16 (November 10-16)	Diwali Break
November 17	Revision
November 18	Revision / Distribution of sessional exams answer sheets
Week 17 (November 20-24)	Revision and Discussion
	Lesson plan for Even Sem (2023-24)
	B.A. /B.Sc. - IInd Year (Semester – IV) BM -241 : SEQUENCES AND SERIES
Week 1 (January 1-6)	Boundedness of the set of real numbers; least upper bound, greatest lower bound of a set,
Week 2 (January 8-13)	Neighborhoods, interior points, isolated points, limit points
Week 3 (January 15-20)	Open sets, closed set, interior of a set, closure of a set in real numbers and their properties.
Week 4 (January 22-27)	Bolzano- Weiestrass theorem, Open covers, Compact sets and Heine-Borel Theorem
Week 5 (January 29-February 3)	Sequence: Real Sequences and their convergence,
Week 6 (February 5-10)	Theorem on limits of sequence, Bounded and monotonic sequences, Cauchy's sequence,
Week 7 (February 12-17)	Cauchy general principle of convergence, Subsequences, Subsequential limits. Infinite series: Convergence and divergence of
Week 8 (February 19-23)	Infinite series: Convergence and divergence of Infinite Series, Comparison Tests of positive terms Infinite series
Week 9 (February 26 March 2)	Cauchy' s general principle of Convergence of series, Convergence and divergence of geometric series,
Week 10 (March 4-9)	Infinite series: D-Alembert's ratio test, Raabe's test,
Week 11 (March 11-16)	Logarithmic test, De Morgan and Bertrand's test,
Week 12 (March 18-22)	Cauchy's Nth root test, Gauss Test, Cauchy's integral test, Cauchy's condensation test, Alternating series, Leibnitz's test, absolute and conditional convergence,
Week 13 (March 23-31)	Holi Break
Week 14 (April 1-6)	Insertion and removal of parenthesis, Dirichlet's theorem,
Week 15 (April 8-13)	Riemann's Re-arrangement theorem, Pringsheim's theorem

Week 16 (April 15-20)	Revision
Week 17 (April 22-30)	Test
	B.A./B.Sc. 2ndYear (Semester 4th) **BM –242:Special Functions and Integral Transforms**
Week 1 (January 1-6)	Power series method
Week 2 (January 8-13)	Definitions of Beta and Gamma functions. Bessel equation and its solution
Week 3 (January 15-20)	Convergence, recurrence, Relations and generating functions, Orthogonality of Bessel functions.
Week 4 (January 22-27)	Legendre and Hermite differentials equations and their solutions
Week 5 (January 29-February 3)	Legendre and Hermite functions and their properties-Recurrence Relations and generating functions
Week 6 (February 5-10)	Orhogonality of Legendre and Hermite polynomials. Rodrigues' Formula for Legendre & Hermite Polynomials,
Week 7 (February 12-17)	Laplace Integral Representation of Legendre polynomial.
Week 8 (February 19-23)	Laplace Transforms – Existence theorem for Laplace transforms,
Week 9 (February 26 March 2)	Shifting theorems, Laplace transforms of derivatives and integrals,
Week 10 (March 4-9)	Convolution theorem, Inverse Laplace transforms, convolution theorem
Week 11 (March 11-16)	Inverse Laplace transforms of derivatives and integrals,
Week 12 (March 18-22)	Fourier transforms: Linearity property, Shifting, Modulation, Convolution, Fourier Transform of Derivatives,
Week 13 (March 23-31)	Holi Break
Week 14 (April 1-6)	Relations between Fourier transform and Laplace transform
Week 15 (April 8-13)	Parseval's identity for Fourier transforms,
Week 16 (April 15-20)	Revision
Week 17 (April 22-30)	Unit test

	B.A./B.Sc. 2ndYear (Semester 4th) **BM –243: Programming in C &Numerical Methods**
Week 1 (January 1-6)	Programmer's model of a computer,
Week 2 (January 8-13)	Algorithms, Flow charts, Data types,
Week 3 (January 15-20)	Operators and expressions, Input / outputs functions. S
Week 4 (January 22-27)	Decisions control structure: Decision statements,
Week 5 (January 29-February 3)	Implementation of Loops, Switch Statement & Case control structures
Week 6 (February 5-10)	Functions, Preprocessors and Arrays.
Week 7 (February 12-17)	Strings: Character Data Type, Standard String handling Functions
Week 8 (February 19-23)	Arrays in Structures, Pointers Data type, Pointers and Arrays, Pointers and Functions.
Week 9 (February 26 March 2)	Bisection method,
Week 10 (March 4-9)	Regula-Falsi method, Secant method,
Week 11 (March 11-16)	Newton-Raphson's method. Newton's iterative method for finding pth root of a number,
Week 12 (March 18-22)	Order of convergence of above methods. Gauss-elimination method, Gauss-Jordan method, Crout's method.
Week 13 (March 23-31)	Holi Break
Week 14 (April 1-6)	Triangularization method (LU decomposition method)
Week 15 (April 8-13)	Cholesky Decomposition method
Week 16 (April 15-20)	Revision
Week 17 (April 22-30)	Unit test
	B.A./B.Sc. 3rd Year (Semester 6th)
	BM –361 Real and complex Analysis
Week 1 (January 1-6)	Jacobians, Beta and Gama functions,
Week 2 (January 8-13)	Double and Triple integrals,
Week 3 (January 15-20)	Dirichlet's integrals, change of order of integration in double integrals.
Week 4 (January 22-27)	Fourier's series: Fourier expansion of piecewise monotonic functions, Properties of Fourier Coefficients,
Week 5 (January 29-February 3)	Dirichlet's conditions, Parseval's identity for Fourier series,

Week 6 (February 5-10)	Fourier series for even and odd functions, Half range series, Change of Intervals.
Week 7 (February 12-17)	Extended Complex Plane, Stereographic projection of complex numbers, c
Week 8 (February 19-23)	Continuity and differentiability of complex functions, Analytic functions,
Week 9 (February 26 March 2)	Cauchy-Riemann equations. Harmonic functions.
Week 10 (March 4-9)	Mappings by elementary functions:
Week 11 (March 11-16)	Translation, rotation, Magnification and Inversion.
Week 12 (March 18-22)	Conformal Mappings, Mobius transformations.
Week 13 (March 23-31)	Holi Break
Week 14 (April 1-6)	Fixed points, Cross ratio
Week 15 (April 8-13)	Inverse Points and critical mappings, Fixed points, Cross ratio,
Week 16 (April 15-20)	Revision
Week 17 (April 22-30)	Unit test
	B.A./B.Sc. 3rdYear (Semester 6th)
	BM –362 Linear Algebra
Week 1 (January 1-6)	Vector spaces, subspaces, Sum and Direct sum of subspaces,
Week 2 (January 8-13)	Linear span, Linearly Independent and dependent subsets of a vector space
Week 3 (January 15-20)	Finitely generated vector space, Existence theorem for basis of a finitely generated vector space
Week 4 (January 22-27)	Finite dimensional vector spaces, Invariance of the number of elements of bases sets,
Week 5 (January 29-February 3)	Dimensions, Quotient space and its dimension.
Week 6 (February 5-10)	Homomorphism and isomorphism of vector spaces, Linear transformations and linear forms on vector spaces
Week 7 (February 12-17)	Dual Spaces, Bidual spaces, annihilator of subspaces of finite dimensional vector spaces
Week 8 (February 19-23)	Null Space, Range space of a linear transformation, Rank and Nullity Theorem
Week 9 (February 26 March 2)	Minimal Polynomial of a linear transformation, Singular and non-singular linear transformations
Week 10 (March 4-9)	Matrix of a linear Transformation, Change of basis, Eigen values and Eigen vectors of linear transformations

Week 11 (March 11-16)	Inner product spaces, Cauchy-Schwarz inequality
Week 12 (March 18-22)	Orthogonal vectors, Orthogonal complements, Orthogonal sets and Basis, Bessel's inequality for finite dimensional vector spaces
Week 13 (March 23-31)	Holi Break
Week 14 (April 1-6)	Unitary linear transformations, Gram-Schmidt Orthogonalization process, Adjoint of a linear transformation
Week 15 (April 8-13)	Unitary linear transformations
Week 16 (April 15-20)	Revision
Week 17 (April 22-30)	Unit test
	B.A./B.Sc. 3rdYear (Semester 6th)
	BM –363 Dynamics
Week 1 (January 1-6)	Velocity and acceleration along radial, transverse
Week 2 (January 8-13)	Tangential and normal directions
Week 3 (January 15-20)	Relative velocity and acceleration.
Week 4 (January 22-27)	Simple harmonic motion. Elastic strings.
Week 5 (January 29-February 3)	Mass, Momentum and Force
Week 6 (February 5-10)	Newton's laws of motion.
Week 7 (February 12-17)	Work, Power and Energy.
Week 8 (February 19-23)	Definitions of Conservative forces and Impulsive forces
Week 9 (February 26 March 2)	Motion on smooth and rough plane curves
Week 10 (March 4-9)	Projectile motion of a particle in a plane.
Week 11 (March 11-16)	Vector angular velocity
Week 12 (March 18-22)	General motion of a rigid body, Central Orbits,
Week 13 (March 23-31)	Holi Break
Week 14 (April 1-6)	Kepler laws of motion
Week 15 (April 8-13)	Motion of a particle in three dimensions.
Week 16 (April 15-20)	Revision
Week 17 (April 22-30)	**Revision**
