

Name :- Mrs. Anil Kumari Sem - 6th
A P (Maths)

Paper - Dynamics.

Month	Week	Topic
January	3 rd	velocity and Acc. along radial, transverse
	4 th	Velo and Acc. tangential and Normal direction
February	1 st	Relative velo. and Acc.
	2 nd	SH.M
	3 rd	Elastic strings.
	4 th	Mass, Momentum and force.
March	1 st and 2 nd	Newton's Law of motion, Revision and test
	3 rd	Work, power and Energy
	4 th	Definitions of Conservative forces and Impulsive forces.
	1 st	General motion of a rigid body.
April	2 nd	Central orbits.
	3 rd	Kepler's law of motion.
	4 th	Motion of a particle in three D
	1 st	Acceleration in terms of diff. co-ordinate systems.
May	2 nd	Revisions, Assignment, test-

Name - Mrs. Anil Kumari
A P (Maths)

Sem - 4th

Paper - Special functions and Integral Transforms.

Month	Week	Topic
January	3 rd	Series solution of differential equations:
	4 th	Power series method, Beta and Gamma functions, Bessel equations and its solution, Bessel functions and their properties.
February	1 st	Convergence, Recurrence relations and generating functions. Orthogonality.
	2 nd	Legendre and Hermite diff. equations and their solutions. and properties.
	3 rd	Orthogonality of Bessel, Legendre and Hermite's functions.
	4 th week.	Revision and test
March	1 st and 2 nd	Laplace transforms, Existence theorem, Linearity, shifting Theorems
	3 rd	Laplace transforms of derivatives and integrals.
	4 th	Convolution theorem Inverse Laplace transforms
	1 st	Solution of DDE using Laplace transform.
April	1 st	Fourier transforms: Linearity, shifting, modulation
	2 nd	Convolution theorem, Derivatives.
	3 rd	Relations between Fourier transform and Laplace, Revision and test
	4 th	Parseval's Identity, Solution of diff. equ.
May	1 st	using Fourier transformations.
	2 nd	Revision, Assignment and Test.

Anil

Name :- Mrs. Anil Kumari
AP (maths)

Sem :- 2nd

Paper :- Vector Calculus.

months	week	Topic
January	3 rd	Scalar and vector product of three vectors.
	4 th	Product of four vectors, Reciprocal vectors. Vector diff.
February	1 st	Scalar and vector valued Funct.
	2 nd	Directional derivatives, Gradient, Geometrical. Interpretation $\text{grad } \phi$
	3 rd	Divergence and curl.
	4 th	Gradient, dive, and curl of sums & product Laplacian operator
March	1 st and 2 nd	Orthogonal curvilinear coordinates, conditions.
	3 rd	Gradient, Divergence, curl and Laplacian operators in terms of orthogonal curvilinear coordinates
April	4 th	Problem taking, Revision and test,
	1 st	Cylindrical co-ordinates
	2 nd	Spherical co-ordinates
	3 rd	Vector Integration, ∇
May	4 th	Line integral, Surface integral, Volume integ.
	1 st	Theorems of Gauss, Green and Stokes.
	2 nd	Revision, Assignment, test.

B.Sc. IInd Sem.

Lesson Plan
(Ordinary Differential Equations)

Month	Syllabus
Jan. 2023	Geometric Meaning of Diff. Equation, Integrating factors, First order and higher order degree equations, Lagrange's equations, Clairaut's equations, orthogonal trajectories.
Feb. 2023	Linear differential equations with constant coefficients, Homogeneous linear ordinary diff. equations.
March 2023	Linear differential eq. of second order, Normal form, Reduction of order of differential equation
April 2023	Simultaneous diff. equations and their solutions, Diff. equation of type $dx + p dy = q dz$, Method of solving $P dx + Q dy + R dz = 0$. Test

Ravi Shankar

Programming in C and Numerical Methods

Month	Syllabus
Jan. 2023	Programmer's model of computer, Flow chart, data type, operators, Control structures, Loop.
Feb. 2023	Switch statements, Functions, pointers and arrays. Strings, Functions, use of structures.
March 2023	Pointers, pointers data type, Solution of Algebraic and Transcendental equations, Numerical methods
April 2023	Simultaneous linear algebraic equations: Gauss elimination method, Triangularization method, Crout's method, Decomposition method, Iterative method, Jacobi's method, Relaxation method Test

Ravi Shankar

Lesson Plan

B.Sc. IIIrd Year Semester VIth (Real and Complex Analysis)

Month	Syllabus
January 2023	Jacobians, Beta and Gamma Functions
Feb. 2023	Double and triple integral Fourier Series
March 2023	Calculus of Complex Functions Elementary Functions
April 2023	Mobius Transformations Conformal Mappings Test

Ravi Shukla

Lesson Plan for the session 2022- 2023

Department of Mathematics

Paper & Class : Number Theory and Trigonometry (B.Sc IInd sem)

Name of the Assistant Professor: Gautam Ram

Date, Week,Month	Chapter and Topic
16.01.2023- 21.01..2023	Divisibility, G.C.D.(greatest common divisors), L.C.M.(least common multiple) Primes, Fundamental Theorem of Arithmetic. Linear Congruences, Fermat's theorem. Wilson's theorem and its converse.
23.01.2023 - 28 .01.2023	Linear Diophantine equations in two variables
30.01.2023 - 04 .02.2023	Discussion on problems in Section 1
06.02.2023 - 11 .02.2023	Complete residue system and reduced residue system modulo m. Euler's ϕ function Euler's generalization of Fermat's theorem.
13.02.2023 - 18.02.2023	Chinese Remainder Theorem. Quadratic residues. Legendre symbols. Lemma of Gauss; Gauss reciprocity law. Greatest integer function $[x]$.
20.02.2023 - 25.02.2023	The number of divisors and the sum of divisors of a natural number n (The functions $d(n)$ and $\sigma(n)$). Moebius function and Moebius inversion formula
27.02.2023 - 04 .03.2023	Revision of unit 2
5.03.2023- 12.03.2023	Holi break
13.03.2023 – 18. 03.2023	De Moivre's Theorem and its Applications. Expansion of trigonometrical functions. Section – I
20.03.2023- 25. 03.2023	Direct circular and hyperbolic functions and their properties.
27.03.2023- 1.04.2023	Discussion on problems in Section 3
03.04.2023- 08.04.2023	Inverse circular and hyperbolic functions and their properties. Gregory's series.
10.04.2023 - 15.04.2023	Logarithm of a complex quantity.
17.04.2023 - 22. 04.2023	Summation of Trigonometry series.
24.04.2023 - 29. 04.2023	Discussion on problems in Section 4 and Revision
1.05.2023 - 6.05.2023	Revision
8. 05.2023 - 15.05.2023	Revision

Signature:

BRS GOVERNMENT COLLEGE DUJANA

Lesson Plan for the session 2022- 2023

Department of Mathematics

Paper & Class : Sequence and Series (B.Sc IV sem)

Name of the Assistant Professor: Gautam Ram

Date, Week,Month	Chapter and Topic
16.01.2023- 21.01..2023	Boundedness of the set of real numbers; least upper bound, greatest lower bound of a set
23.01.2023 - 28 .01.2023	neighborhoods, interior points, isolated points, limit points, open sets, closed set, interior of a set, closure of a set in real numbers and their properties.
30.01.2023 - 04 .02.2023	Bolzano-Weiestrass theorem, Open covers, Compact sets and Heine-Borel Theorem.
06.02.2023 - 11 .02.2023	Discussion on problems in Section 1
13.02.2023 - 18.02.2023	Sequence: Real Sequences and their convergence, Theorem on limits of sequence, Bounded and monotonic sequences
20.02.2023 - 25.02.2023	Cauchy's sequence, Cauchy general principle of convergence, Subsequences, Subsequential limits.
27.02.2023 - 04 .03.2023	Infinite series: Convergence and divergence of Infinite Series, Comparison Tests of positive terms Infinite series,
5.03.2023- 12.03.2023	Holi break
13.03.2023 – 18. 03.2023	Cauchy's general principle of Convergence of series, Convergence and divergence of geometric series, Hyper Harmonic series or p-series
20.03.2023- 25. 03.2023	Infinite series: D-Alembert's ratio test, Raabe's test, Logarithmic test, de Morgan and Bertrand's test,
27.03.2023- 1.04.2023	Cauchy's Nth root test, Gauss Test, Cauchy's integral test, Cauchy's condensation test.
03.04.2023- 08.04.2023	Cauchy product of the series,infinite product
10.04.2023 - 15.04.2023	Discussion on problems in Section 3
17.04.2023 - 22. 04.2023	Alternating series, Leibnitz's test, absolute and conditional convergence, Arbitrary series: abel's lemma, Abel's test, Dirichlet's test, Insertion and removal of parenthesis, re-arrangement of terms in a series,
24.04.2023 - 29. 04.2023	Dirichlet's theorem, Riemann's Re-arrangement theorem, Pringsheim's theorem (statement only), Multiplication of series
1.05.2023 - 6.05.2023	Cauchy product of series, (definitions and examples only) Convergence and absolute convergence of infinite products
8. 05.2023 - 15.05.2023	Discussion on problems in Section 4 and Revision

Signature:

BRS GOVERNMENT COLLEGE DUJANA

Lesson Plan for the session 2022- 2023

Department of Mathematics

Paper & Class : Linear Algebra (B.Sc 6th sem)

Name of the Assistant Professor: Gautam Ram

Date, Week,Month	Chapter and Topic
16.01.2023- 21.01..2023	Vector spaces, subspaces, Sum and Direct sum of subspaces, Linear span, Linearly Independent and dependent subsets of a vector space. Finitely generated vector space,
23.01.2023 - 28 .01.2023	Existence theorem for basis of a finitely generated vector space, Finite dimensional vector spaces, Invariance of the number of elements of bases sets, Dimensions, Quotient space and its dimension.
30.01.2023 - 04 .02.2023	Discussion on problems in Section 1
06.02.2023 - 11 .02.2023	homomorphism and isomorphism of vector spaces, Linear transformations and linear forms on vector spaces, Vector space of all the linear transformations Dual Spaces,
13.02.2023 - 18.02.2023	Dual spaces, annihilator of subspaces of finite dimensional vector spaces, ,
20.02.2023 - 25.02.2023	Null Space, Range space of a linear transformation, Rank and Nullity Theorem
27.02.2023 - 04 .03.2023	Revision of unit 2
5.03.2023- 12.03.2023	Holi break
13.03.2023 – 18. 03.2023	Algebra of Linear Transformation, Minimal Polynomial of a linear transformation, Singular and non-singular linear transformations
20.03.2023- 25. 03.2023	Matrix of a linear Transformation, Change of basis, Eigen values and Eigen vectors of linear transformations
27.03.2023- 1.04.2023	Discussion on problems in Section 3
03.04.2023- 08.04.2023	Inner product spaces, Cauchy-Schwarz inequality, Orthogonal vectors, Orthogonal complements,
10.04.2023 - 15.04.2023	Orthogonal sets and Basis, Bessel's inequality for finite dimensional vector spaces,
17.04.2023 - 22. 04.2023	GramSchmidt, Orthogonalization process, Adjoint of a linear transformation and its properties, Unitary linear transformations.
24.04.2023 - 29. 04.2023	Discussion on problems in Section 4
1.05.2023 - 6.05.2023	Revision
8. 05.2023 - 15.05.2023	Revision

Signature: