

KVA DAV College for Women, Karnal

Lesson plan for the odd semester (October, 2021 to February, 2022)

Name of the Teacher – Dr. Shweta Dhawan

Subject- Mathematics

Paper- BM-111 (Algebra)

Class- B.A/B.Sc Ist Year

October, 2021 2 nd Week 11 Oct-16 Oct	• Definition of Different Types of matrices. • Transpose & Transpose conjugate of matrix. • Adjoint of a square matrix • Inverse of a square matrix. • Singular and Non-Singular matrices
15 Oct, 2021 17 Oct, 2021	(Dussehra) Sunday
3 th Week 18 Oct-23 Oct	Solution of System of linear equations. Define symmetric & skew-symmetric matrices. Define Hermitian & skew- Hermitian matrices. Properties and examples of matrices. Orthogonal matrix. Unitary matrix.
20 Oct, 2021 24 Oct, 2021	Maharishi Valmiki Jayanti Sunday
4 th Week 25 Oct-30 Oct	Properties of orthogonal & unitary matrices. Define Rank of a matrix. Row Equivalent matrix. Column Equivalent matrix. Row-Echelon matrix.
31 Oct, 2021	Sunday
November, 2021 1 st Week 1 Nov-7 Nov	(Haryana Day) Diwali Holidays
2 nd Week	Column- Echelon matrix.

8 Nov-13 Nov	Row rank and column rank of matrix. Reduction of matrix to Triangular form. Define Normal form of a matrix. Examples of normal form. Non-singular matrices in normal form.
14 Nov, 2021	Sunday
3 rd Week 15 Nov-20 Nov	Linear Dependence & Independence of column matrices. Theorems of linear Dependence & Independence. Define characteristic matrix and equation.
21 Nov, 2021	Sunday
4 th Week 22 Nov-27	Define characteristic roots. Spectrum of a matrix Examples related to characteristic roots. Define characteristic vector. Examples related to characteristic vectors.
28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	Define Scalar Polynomial. Define matrix polynomial. Cayley-Hamilton theorem. Discuss examples of Cayley-Hamilton theorem Some theorems on characteristic roots. Some theorems on characteristic vectors.
05 Dec, 2021	Sunday
2 nd Week 06 Dec -11 Dec	Miminal & Monic Polynomials. Derogatory & Non-Derogatory Matrices. System of Non-Homogeneous Linear equations. System of Homogeneous Linear equations..
12 Dec,2021	Sunday
3 rd week 13 Dec -18 Dec	Method to write matrix of Bilinear form. Method to write matrix of Quadratic form. Diagonalization of a quadratic form. Discuss index, signature & Rank of quadratic form. Positive definite & Semi-definite form. Negative definite & Semi- definite form.
19 Dec,2021	Sunday

4 th Week 20 Dec-24 Dec	Sylvester's Criterion for positive definiteness. Remainder & factor theorem for roots. Synthetic Division with examples. Fundamental theorem of Algebra. Rational & Irrational Roots. Common Roots
25 Dec,2021 26 Dec,2021	Christmas Sunday
5 th Week 27 Dec -01 Jan	Equal roots of an equation. Multiple roots of an equation. Roots with signs changed Roots multiplied by a given number.
2 Jan ,2022	Sunday
Jan ,2022 1 st week 3 Jan – 8 Jan	Reciprocal roots and reciprocal equation. Roots diminished by a given number. Transformation of the Cubic equation. Transformation of the biquadratic equation.
9 Jan ,2022	Sunday(Sh. Guru Gobind Singh's Birthday)

2 nd week 10 Jan – 15 Jan	Equations of squared differences of a cubic. Discuss, equations of diminishing by a root. Cardan's Method.
16 Jan ,2022	Sunday
3 rd week 17 Jan – 22 Jan	Discuss nature of roots of cubic equation. Irreducible cases of Cardan's method. Examples of cardan's method
23 Jan ,2022	Sunday
4 th Week 24 Jan – 29 Jan	Descarte's solution of the Biquadratic equations. Discuss Descarte's examples Define Ferrari's method.
26 Jan, 2022 30 Jan ,2022	Republic Day Sunday
Feb, 2021 1 st week 1 Feb-4 Feb	Define Ferrari's method. Working rule for Ferrai's method
5 Feb, 2022	Vasant Panchmi

6 Feb ,2022	Sunday
2 nd week 7 Feb- 12 Feb	Examples of Ferrari's method. Continuation & permanence of signs Descarte's rule of Sign
13 Feb ,2022	Sunday
3 rd week 14 Feb- 19 Feb	Revision

Name of the Teachers : Dr Manju Sharma

Subject: Mathematics

Paper:- Calculus Class: B.sc. I

WEEK	DATE	
1	October (6 - 9)	Orientation
		HOLIDAY - 07.10.2021 - Maharaja Agarsen Jayanti
		Discuss Program outcomes and course outcomes with students
		Derivative of a Function
SUNDAY - 10.10.2021		
2	October (11-16)	Basics of Differentiation and Integration
		Basics of Differentiation and Integration
		Successive Differentiation
		Questions based on Successive Differentiation
		HOLIDAY - 15.10.2021 - DUSSEHRA
		Questions based on Successive Differentiation
SUNDAY - 17.10.2021		
3	October (18-23)	Differentiation of Parametric Functions
		Differentiation of Parametric Functions
		Holiday - 20.10.2021 - Maharishi Valmiki Jayanti

5	November (8 -13)	Problem Discussion
		Test
		Taylor's Theorem with Lagrange's form of remainder Questions based on Taylor's Theorem
		Questions based on Taylor's Theorem
		Taylor's Theorem with Cauchy's form of remainder Questions based on Taylor's Theorem with Cauchy's form of remainder
		Taylor's Theorem with Cauchy's form of remainder Questions based on Taylor's Theorem with Cauchy's form of remainder
SUNDAY - 14.11.2021		
6	November (15 -20)	Infinite Series
		Infinite Series
		Infinite Series
		Infinite Series
		Holiday -19.11.2021 - Guru Nanak Dev Jayanti
		Applications of Taylor's Series
SUNDAY - 21.11.2021		
7	November (22-27)	Applications of Taylor's Series
		Applications of Taylor's Series
		Applications of Taylor's Series

		Problem Discussion
		Expansion by Differential Equations
		Expansion by Differential Equations
SUNDAY - 28.11.2021		
8	November (29-30) December (1-4)	Problem Discussion
		Test
		Asymptotes
		Oblique Asymptotes and Questions based on it
		Oblique Asymptotes and Questions based on it
SUNDAY - 5.12.2021		
9	December (6-11)	Oblique Asymptotes of Algebraic Curve
		Oblique Asymptotes of Algebraic Curve
		Oblique Asymptotes of Algebraic Curve
		Intersection of Curve and its Asymptotes
		Intersection of Curve and its Asymptotes
		Intersection of Curve and its Asymptotes
SUNDAY - 12.12.2021		
10		Polar Asymptotes

	December (13-18)	Polar Asymptotes
		Polar Asymptotes
		Polar Asymptotes
		Problem Discussion
		Test

SUNDAY - 19.12.2021

11	December (20-25)	Curvature
		Articles related to Curvature
		Questions based on Curvature
		Questions based on Curvature
		Questions based on Curvature
		Questions based on Curvature

SUNDAY - 26.12.2021

12	December (27-31)	Radius of Curvature in Polar Form
		Radius of Curvature in Polar Form
		Curvature at Origin
		Centre of Curvature and Evolute of a Curve
		Centre of Curvature and Evolute of a Curve
	January (1)	Centre of Curvature and Evolute of a Curve

SUNDAY -02.01.2022		
13	January (3-8)	Curve Tracing
		Curve Tracing
		Curve Tracing
		Curve Tracing Parametric Equations
		Curve Tracing Parametric Equations
		Curve Tracing Parametric Equations
		Tracing of Polar Curves
SUNDAY - 09.01.2022		
14	January (10-15)	Tracing of Polar Curves
		Problem Discussion
		Test
		Reduction Formulae
		Articles related to Reduction Formulae
		Articles related to Reduction Formulae
		Articles related to Reduction Formulae
SUNDAY - 16.01.2022		
15	January (17-22)	Questions based on Reduction Formulae
		Questions based on Reduction Formulae
		Questions based on Reduction Formulae

		Questions based on Reduction Formulae
		Problem Discussion
		Test
SUNDAY - 23.01.2022		
16	January (24-29)	Rectification, Fundamental Theorem about Rectification
		Rectification, Fundamental Theorem about Rectification
		Holiday - 26.01.2022 - Republic day
		Rectification, Fundamental Theorem about Rectification
		Rectification, Fundamental Theorem about Rectification
		Problem Discussion
SUNDAY - 30.01.2022		
17	January(31)	Test
	February (1-4)	Length of Parametric Curves
		Length of Parametric Curves
		Length of Parametric Curves
		Length of Polar Curves
Holiday - 05.02.2022 - Vasant Panchami		
SUNDAY - 6.02.2022		
18	February (7-12)	Length of Polar Curves
		Length of Polar Curves
		Intrinsic Equation of a Curve
		Quadrature
		Quadrature
		Quadrature

		Questions based on Quadrature
		SUNDAY - 13.02.2022
19	February (14-19)	Problem discussion
		Test
		Revision
		Revision
		Revision
		Revision
		SUNDAY - 20.02.2022
20	February (21-22)	Revision
		Test

**Lesson plan for the odd semester
(October, 2021 to February, 2022)**

Name of the Teacher – Ms. MEENU KALRA

Subject- MATHEMATICS

Paper-SOLID GEOMETRY

Class:- B.A/B.Sc. SEM I

October, 2021 1 st Week 06Oct-09Oct	General Equation of second degree, conic sections, classification To find the centre, length and equation of axes of central conic
10 October, 2021	Sunday
October, 2021 2 nd Week 11 Oct-16 Oct	To find foci, directrix of the conic To find the axis, latus rectum and tangent at the vertex of the parabola To find the equation of director circle Continued....
15 Oct, 2021 17 Oct, 2021	(Dussehra) Sunday
3 th Week 18 Oct-23 Oct	Tracing of conics Tangents at the point to the conic Chord of contact Pole of line to the conic Director circle of conic System of conics, confocal conics
20 Oct, 2021 24 Oct, 2021	Maharishi Valmiki Jayanti Sunday
4 th Week 25 Oct-30 Oct	Polar equation of conic. Tangent and normal to the conic Continued.... Sphere: plane section of sphere, sphere through a given circle Continued....
31 Oct, 2021	Sunday
November, 2021 1 st Week	(Haryana Day)

1 Nov-7 Nov	Diwali Holidays
2nd Week 8 Nov-13 Nov	Intersection of two spheres, Coaxial system of spheres. Cones: Right circular cone, enveloping cone Continued....
14 Nov, 2021	Sunday
3 rd Week 15 Nov-20 Nov	Student Problems Revision TEST
21 Nov, 2021	Sunday
4 th Week 22 Nov-27	Cylinder: Right circular cylinder Enveloping cylinder Continued with examples and exercises Continued Continued...
28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	Central conicoids: Equation of tangent plane Equation of director sphere with examples Normal to the conicoids... Continued..
05 Dec, 2021	Sunday
2 nd Week 06 Dec -11 Dec	Polar plane of a point Enveloping cone of a conicoids Enveloping cylinder of a conicoid Continued....
12 Dec, 2021	Sunday
3 rd week 13 Dec -18 Dec	Continued conicoid with examples. Continued conicoids with exercises

	Revision & Test
19 Dec,2021	Sunday
4 th Week 20 Dec-24 Dec	Introduction to paraboloids Paraboloids:circular section Discuss paraboloids with examples Discuss paraboloids with exercise
25 Dec,2021	Christmas
26 Dec,2021	Sunday
5 th Week 27 Dec -01 Jan	Plane section of conicoids Continued examples Continued exercises Continued
2 Jan ,2022	Sunday
Jan ,2022 1 st week 3 Jan – 8 Jan	Generating lines and its properties Continued properties Continued examples of generating lines Continued exercises Confocal conicoids:introduction to confocal conicoids Continued
9 Jan ,2022	Sunday(Sh. Guru Gobind Singh's Birthday)
2 nd week 10 Jan – 15 Jan	Discuss results with examples Continued examples Continued examples
16 Jan ,2022	Sunday
3 rd week 17 Jan – 22 Jan	Continued exercises Revision and tests. Revision and tests.
23 Jan ,2022	Sunday
4 th Week 24 Jan – 29 Jan	Reduction of second degree equations Students problems Questions

26 Jan, 2022	Republic Day
30 Jan ,2022	Sunday
Feb, 2021	Discuss the properties and their nature
1 st week	Class discussion
1 Feb-4 Feb	Student problems
5 Feb, 2022	Vasant Panchmi
6 Feb ,2022	Sunday
2 nd week	Discuss about their standard forms
7 Feb- 12 Feb	Student problems
13 Feb ,2022	Sunday
3 rd week	Class Discussion
14 Feb- 19 Feb	Revision

Teaching Term : (06.10.2021 to 22.02.2022)

(Odd Semester)

Name of the Paper:- Advanced Calculus

Class: B.A/B.ScII

Name of the Teacher : Dr. Manju Sharma

WEEK	DATE	
1	October (6 - 9)	Discuss Program outcomes and Course outcomes.
		HOLIDAY - 07.10.2021 - Maharaja Agarsen Jayanti
		Basic concepts
		Basic concepts
SUNDAY - 10.10.2021		
2	October (11-16)	Continuous Function, Discontinuous function
		Theorems based on continuous function
		Properties of continuous Function
		continue
		HOLIDAY - 15.10.2021 - DUSSEHRA
		Open sets and closed sets
SUNDAY - 17.10.2021		
3	Octob	Theorems on open and closed sets
		Intermediate value theorem
		Holiday - 20.10.2021 - Maharishi Valmiki Jayanti

5	November (8 -13)	Derivability of a function, Chain rule
		Related questions
		Darboux theorem and related que.
		Rolle’s theorem and its geometrical interpretation
		Related questions
		continue
SUNDAY - 14.11.2021		
6	November (15 -20)	Lagrange’s Mean Value Theorem and its geometrical interpretation
		Related questions
		Cauchy Mean Value Theorem
		Related questions
		Holiday -19.11.2021 - Guru Nanak Dev Jayanti
		Taylor’s Theorem
SUNDAY - 21.11.2021		
7	November (22-27)	Related questions
		Problem solving session
		Intermediate Form
		Intermediate Form
		Intermediate Form
		Intermediate Form
SUNDAY - 28.11.2021		
8	November (29-30) December (1-4)	Intermediate Form
		Intermediate Form
		Problem Discussion
		Test
		Limit, Continuity of functions of Two variables
		Limit, Continuity of functions of Two variables
SUNDAY - 5.12.2021		
9	December (6-11)	Limit, Continuity of functions of Two variables
		Limit, Continuity of functions of Two variables
		Problem solving session
		Test
		Partial Differentiation
		Related problems
SUNDAY - 12.12.2021		
10	December (13-18)	Homogeneous functions and Euler’s theorem on homogeneous functions
		Related problems and theorems
		Total differentials
		Composite functions and implicit functions
		Change of variable
		Related problems
SUNDAY - 19.12.2021		

11	December (20-25)	Differentiation of implicit functions
		Related problems
		Taylor’s theorem
		Related theorems
		Problem solving session
		Holiday -25.12.2021 - Christmas
SUNDAY - 26.12.2021		
12	December (27-31)	Test
		Differentiability of functions of two variables
		Related problems
		Sufficient condition for differentiability
		Related problems
	January (1)	Young’s theorem
SUNDAY -02.01.2022		
13	January (3-8)	Schwarz’s theorem
		Related problems
		Implicit function and Implicit function theorem
		Related problems
		Problem solving session
		Test
SUNDAY - 09.01.2022		
14	January (10-15)	Maxima and Minima of Functions of two variables
		Related theorems
		Related problems
		Related problems
		Problem solving session
		Lagrange’s method of undetermined multipliers
SUNDAY - 16.01.2022		
15	January (17-22)	Maxima and Minima of Functions
		Related problems
		Problem solving session
		Curve in space
		Curve in space
		Curve in space
SUNDAY - 23.01.2022		
16	January (24-29)	Curve in space
		Curve in space
		Holiday - 26.01.2022 - Republic day
		Curve in space
		Circle of Curvature and Spherical Curvature
		Circle of Curvature and Spherical Curvature
SUNDAY - 30.01.2022		

17	January(31)	Circle of Curvature and Spherical Curvature
	February(1-4)	Circle of Curvature and Spherical Curvature
		Circle of Curvature and Spherical Curvature
		Circle of Curvature and Spherical Curvature
		Problem Discussion
Holiday - 05.02.2022 - Vasant Panchami		
SUNDAY - 6.02.2022		
18	February (7-12)	Test
		Involutes and Evolutes
		Involutes and Evolutes
		Involutes and Evolutes
		Involutes and Evolutes
		Concept of Surfaces and Envelopes
		SUNDAY - 13.02.2022
19	February (14-19)	Concept of Surfaces and Envelopes
		Concept of Surfaces and Envelopes
		Concept of Surfaces and Envelopes
		Problem Discussion
		Revision
		Revision
		SUNDAY - 20.02.2022
20	February (21-22)	Revision
		Revision

Teaching Term : (06.10.2021 to 22.02.2022)

(Odd Semester)

Weekly Lesson Plan UG (IIIrd Semester)

Name of the Paper:- PARTIAL DIFFERENTIAL EQUATION

Class: B.A/B.Sc 2nd Year

Name of the Teacher Dr. Shweta Dhawan

WEEK	DATE	
1	October (6 - 9)	Intracation With students
		HOLIDAY - 07.10.2021 - Maharaja Agarsen Jayanti
		Discuss Programme outcomes and Course outcomes
		Basic about differential equation

Sunday - 10.10.2021		
2	October (11-16)	Basic about differential equation
		Basic about differential equation
		Partial differential equation
		Types of differential equation
		Holiday - 15.10.2021 - dussehra
		Some important results and formulae
SUNDAY - 17.10.2021		
3	October (18-23)	Order and degree
		Linear and non linear partial differential equation of first order
		Holiday - 20.10.2021 - maharishi valmiki jayanti
		Complete solution
		Singular solution, general solution
		Continue
Sunday - 24.10.2021		
4	October (25 -30)	Examples
		Examples
		Solution of lagranges linear equation
		Examples
		Examples
		Continue
VACATIONS: 31.10.2021 to 07.11.2021 - DIWALI BREAK		

5	November (8 -13)	Charpit general method of solution
		Examples
		Examples
		Compatible system of first order
		Examples
		Examples
Sunday - 14.11.2021		
6	November (15 -20)	Jacobis method
		Examples
		Examples
		Doubts
		Holiday -19.11.2021 - guru nanak dev jayanti
		Class test
Sunday - 21.11.2021		

7	November(22-27)	Linear partial differential equation of second and higher order
		Examples
		Examples
		Examples
		Linear homogenous equation
		Examples
SUNDAY - 28.11.2021		
8	November(29-30) December(1-4)	Non linear homogenous equation
		Examples
		Examples
		Examples
		Partial differential equation with constant coefficients
		Examples
Sunday - 5.12.2021		
9	December(6-11)	Examples
		Examples
		Examples
		Equation reducible with constant coefficients
		Complimentary equation
		Examples
Sunday - 12.12.2021		
10	December(13-18)	Examples
		Particular integrals
		Examples
		Examples
		Examples
		Examples
Sunday - 19.12.2021		
11	December(20-25)	Equation reducible to linear equation with constant coefficients
		Examples
		Examples
		Doubts
		Class test
		Holiday -25.12.2021 - christmas
Sunday - 26.12.2021		
	December(27-	Classification of linear partial differential equation of second
		Continue
		Examples

12	31)	Examples
		Examples
	January (1)	HYPERBOLIC EQUATION
Sunday -02.01.2022		
13	January(3-8)	Examples
		Examples
		Examples
		Parabolic equation
		Examples
		Examples
Sunday - 09.01.2022		

14	January(10-15)	Examples
		Elliptic type equation
		Examples
		Examples
		Examples
		Examples
Sunday - 16.01.2022		
15	January(17-22)	Reduction of second order linear p.d.e into canonical form
		Examples
		Examples
		Examples
		Examples
		Examples
SUNDAY - 23.01.2022		
16	January(24-29)	Solution of linear hyperbolic equation
		Monges method
		Holiday - 26.01.2022 - Republic day
		Examples
		Examples
		Doubts
Sunday - 30.01.2022		
17	January(31)	Cauchy problem for second order
	February(1-4)	Examples
		Examples
		Examples
		Characterstic equation and characterstic curve

Holiday - 05.02.2022 - vasant panchami		
Sunday - 6.02.2022		
18	February(7-12)	Examples
		Method of separation of variables of Laplace equation
		Examples
		Examples
		Examples
		Examples
		SUNDAY - 13.02.2022

19	February(14-19)	Wave equation in one and two dimensions
		Examples
		Examples
		Heat equation in one and two dimensions
		Examples
		Examples
		Sunday - 20.02.2022
20	February(21-22)	Doubts
		Class test

**Lesson plan for the odd semester
(October, 2021 to February, 2022)**

Name of the Teacher – Ms. MEENU KALRA

Subject- MATHEMATICS

Paper- STATICS

Class-B.Sc. Sem 3

October, 2021	
1st Week	Forces acting at a point
06 Oct-09 Oct	Resultant and its components, Magnitude and direction of its resultant
	Resolved parts of a force
	Questions
	Triangle law of vectors

	Questions
10 October, 2021	Sunday
October, 2021 2 nd Week 11 Oct-16 Oct	Lamda mew theorem Lami's theorem Questions based on Lami's Theorem
15 Oct, 2021 17 Oct, 2021	(Dussehra) Sunday
3 th Week 18 Oct-23 Oct	Conditions of equilibrium of concurrent forces Revision
20 Oct, 2021 24 Oct, 2021	Maharishi Valmiki Jayanti Sunday
4 th Week 25 Oct-30 Oct	Equilibrium of bodies placed on a smooth inclined planes Parallel forces Resultant of two like and unlike parallel forces acting on a rigid body
31 Oct, 2021	Sunday
November, 2021 1 st Week 1 Nov-7 Nov	(Haryana Day) Diwali Holidays
2 nd Week	Questions

8 Nov-13 Nov	Questions
14 Nov, 2021	Sunday
3 rd Week 15 Nov-20 Nov	Continued.... Analogue of lami's theorem Questions based on analogue of lami's theorem Continued..
21 Nov, 2021	Sunday
4 th Week 22 Nov-27	Introduction to moments Definition of moments Varignon's Theorem-when the forces acting at a point When the forces are parallel Moment of a force about a line Continued...

28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	Questions based on moments. Introduction to couples Moment of a couple, Sign of a moment of a couple Continued
05 Dec, 2021	Sunday

2 nd Week 06 Dec -11 Dec	Equilibrium of two couples Continued Questions
12 Dec,2021	Sunday
3 rd week 13 Dec -18 Dec	Analytical conditions of equilibrium of coplanar forces Equilibrium of three forces acting at a point Questions Continued
19 Dec,2021	Sunday
4 th Week 20 Dec-24 Dec	Trigonometrical Theorem Continued.... Questions
25 Dec,2021	Christmas
26 Dec,2021	Sunday
5 th Week 27 Dec -01 Jan	Forces which may be omitted in forming the equation of virtual work Questions Continued

2 Jan ,2022	Sunday
Jan ,2022 1 st week 3 Jan – 8 Jan	Forces in three dimensions Prallelopied law of forces Questions Axis of couple Questions
9 Jan ,2022	Sunday(Sh. Guru Gobind Singh's Birthday)

2 nd week 10 Jan – 15 Jan	Conditions of equilibrium of a rigid body Questions Continued Poinsot's central axis Questions
16 Jan ,2022	Sunday
3 rd week 17 Jan – 22 Jan	Condition in order that a general system of forces in space reduce to a single Force. Equation of central axis Conditions of equilibrium of any no. of coplanar forces Friction:Introduction Force of friction,coefficient of friction Continued
23 Jan ,2022	Sunday

4 th Week 24 Jan – 29 Jan	Angle and cone of friction Questions Continued Problems on equilibrium of rods and ladders Continued Centre of gravity: C.G. of a uniform rods,C.G. of uniform lamina in form of a parallelogram Questions
26 Jan, 2022 30 Jan ,2022	Republic Day Sunday
Feb, 2021 1 st week 1 Feb-4 Feb	C.G. of a thin uniform triangular lamina Questions C.G. of right circular solid cone Questions Virtual work Principle of virtual work Introduction to wrenches Resultant wrench of two given wrenches Questions
5 Feb, 2022 6 Feb ,2022	Vasant Panchmi Sunday
2 nd week 7 Feb- 12 Feb	Find the locus of the central axis,if pitches are given Null lines and null planes Find the null point of the plane for the system of forces Find the condition that straight line may be a null line Questions Stable,Unstable and neutral equilibrium

	Questions
13 Feb ,2022	Sunday
3 rd week 14 Feb- 19 Feb	Conditions of stability of equilibrium REVISION

Teaching Term : (06.10.2021 to 22.02.2022)

(Odd Semester) VTH SEMESTER

Name of the Paper:-Real Analysis

Class: B.A./B.Sc

Name of the Teachers : Dr. Manju Sharma

WEEK	DATE	
1	October (6 - 9)	Discuss Program outcomes
		HOLIDAY - 07.10.2021 - Maharaja Agarsen Jayanti
		Discuss course outcomes
		ORIENTATION
SUNDAY - 10.10.2021		
2	October (11-16)	Basic concepts
		Introduction to riemann integral
		Definition if partition,norm, refinement ,upper sum and lower sums
		Theorem based on lower sum and upper sum ,oscillatory sum
		HOLIDAY - 15.10.2021 - DUSSEHRA
		Doubt clearing session
Sunday - 17.10.2021		
3	October (18-23)	Upper integral and lower integral
		Riemann integral and examples based upon integral function
		Holiday - 20.10.2021 - Maharishi Valmiki Jayanti
		Class test
		Related problems
		Theorem based upon integrability ,darboux 's theorem
		Sunday - 24.10.2021
4	October(25-30)	Conditions of integrability
		Integrability of continuous functions
		Some theorem and examples
4	October (25 -30)	RELATED PROBLEMS
		INTEGRABILITY OF MONOTONIC FUNCTIONS

		Diwali Break(31.10.2021 to 07.11.2021)
5	November(8 -13)	Mean value theorem of integral calculus and examples
		Related problems
		Revision of chapter 1
		Class test
		Assignment 1
		Introduction to improper integrals
Sunday - 14.11.2021		
6	November(15 - 20)	Introduction to improper integrals
		Improper integrals and their types & their convergence
		Examples and exercise
		Camparision tests and examples based on comparision tests
		Holiday -19.11.2021 - guru nanak dev jayanti
		Related problems
Sunday - 21.11.2021		
7	November(22- 27)	Abel's and drichlet's test
		Related problems
		Class test
		Related problems
		Frullani's integral
		Related problems
SUNDAY - 28.11.2021		
8	November(29- 30) December(1-4)	Introduction to integral as a function of a parameter
		Continuity of the integral,differentiability of the integral,
		Examples
		Related problems
		Doubt clearing session
		Class test
SUNDAY - 5.12.2021		
		Introduction to metric spaces
		Examples based upon different types of metric spaces
		Bounded sequence ,bounded function

9	December(6-11)	Induced metric
		Pseudo metric spaces and examples based on it
		Distance between point and subset, diameter of a subset
SUNDAY - 12.12.2021		
10	December (13-18)	Distance between two sets
		Bounded and unbounded metric spaces and examples
		Related problems
		Doubt clearing session
		Test
		Introduction to neighbourhood, interior points
SUNDAY - 19.12.2021		
11	December (20-25)	Introduction to limit point
		Introduction to open sets
		Theorem based on limit point
		Theorem based on open set
		Theorem based on interior point
		Holiday -25.12.2021 - Christmas
SUNDAY - 26.12.2021		
12	December (27-31)	Closed sets,closure
		Interior of a set,boundary points
		Theorem based upon closed set
		Theorem based upon boundary point
		Revision and problems
	January (1)	Derived set
SUNDAY -02.01.2022		
13	January(3-8)	Exterior of a sets
		Theorem based upon exterior sets
		Examples
		Related problems
		Sequences in metric spaces , convergence in a metric space
		Theorem based upon sequences in metric spaces , convergence in a metric space

SUNDAY - 09.01.2022		
14	January(10-15)	Cauchy sequence , complete metric space and examples
		Theorem based upon complete metric spaces
		Completeness of $\mathbb{R}$
		Cantor's intersection theorem
		Converse of cantor's intersection theorem
		Nowhere dense set , definition of first category and second category space
SUNDAY - 16.01.2022		
15	January(17-22)	Baire 's category theorem
		Contraction principle in a metric space
		Fixed point ,banach's fixed point theorem
		Related problems
		Doubts and quick revision of chapter 6
		Class test
SUNDAY - 23.01.2022		
16	January(24-29)	Test of section 2
		Continuous function in metric spaces
		Holiday - 26.01.2022 - Republic day
		Examples, theorems based upon continuity in metric spaces
		Uniform continuity in metric spaces
		Examples based upon u.c.
SUNDAY - 30.01.2022		
17	January(31)	ISOMETRY AND SOME MAPPINGS
	February(1-4)	Examples
		Related problems
		Test
		Definitions of covers , examples
Holiday - 05.02.2022 - Vasant Panchami		
SUNDAY - 6.02.2022		

18	February(7-12)	Definitions of covers , examples
		Bolzano weierstrass property (bwp)
		Sequentially compact metric space
		Theorem based upon sequentially compact metric space
		Finite intersection property (fip)
		Epsilon net and total boundedness
		SUNDAY - 13.02.2022
19	February(14-19)	Related problems
		Connected sets, separated sets , disconnected sets
		Theorem based upon separated sets , connected and disconnected sets
		Theorem based upon separated sets , connected and disconnected sets
		Components
		Continuity and connectedness
		SUNDAY - 20.02.2022
20	February(21-22)	Doubt clearing session
		Doubt clearing session

**Lesson plan for the odd semester
(October, 2021 to February, 2022)**

Name of the Teacher – Dr. Shweta Dhawan

Subject- Mathematics

Paper- BM-352

Class- B.A /B.Sc (III)

October, 2021 2 nd Week 11 Oct-16 Oct	Binary operation, properties of binary operation, Definition of GROUP, SemiGroup, Finite and Infinite Group, Order of a Group , Examples based on Group, Examples continued, General properties of Groups, Cancellation Laws, Examples, Order of an element of a Group, Theorems based on order of an element of a Group , Theorems and Examples based on order of an element of a Group.
--	---

15 Oct, 2021	(Dussehra)
17 Oct, 2021	Sunday
3 th Week 18 Oct-23 Oct	Complexes And subgroups of a Group, Definition of Subgroup, Theorems based on Subgroup , Theorems continued and Examples based on subgroup of a Group, Cyclic Groups, Some theorems on Cyclic Group, Examples based on Cyclic Group, Definition of a Coset of a Group, Definition of Right Coset and Left Coset of a Group, Theorems on Cosets , Examples based on Coset, Definition of index of a subgroup in a Group.
20 Oct, 2021	Maharishi Valmiki Jayanti
24 Oct, 2021	Sunday
4 th Week 25 Oct-30 Oct	Langrange's Theorem, Some other theorems based on order of an element, test of Group, Subgroup and Cosets, Definition Of Normal Subgroup, Simple Subgroup, Some Theorems On Normal Subgroup , Definition of Quotient Group, Theorems on Quotient Groups, GROUP DISCUSSION ON Group, Subgroup, Coset, Normal Subgroup, Quotient Group.
31 Oct, 2021	Sunday
November, 2021	
1 st Week	(Haryana Day)
1 Nov-7 Nov	Diwali Holidays
2nd Week 8 Nov-13 Nov	Homomorphisms Of Groups, Isomorphisms Of Groups, Isomorphic Groups, Some Theorems On Homomorphisms, Examples Based On Homomorphisms Definition Of Kernel Of Homomorphisms And Examples Based On Kernel Of Homomorphisms Of Groups , Fundamental Theorems Of Homomorphisms Of Groups, Second Theorem Of Isomorphisms , Third Theorem Of Isomorphisms, Defintion Of Automormorphisms Of Groups, Examples Based On Automorphisms OF A Group , Definition Of Inner Automorphisms, Examples Based On Inner Automorphisms

14 Nov, 2021	Sunday
3 rd Week 15 Nov-20 Nov	Definition Of Inner Automorphisms, Examples Based On Inner Automorphisms , Group Of Automorphisms Of A Cyclic Group, Examples Based On Cyclic Groups, Definition Of Centre Of A Group, Examples And Theorems Based On Centre Of A Group, Definition Of Normalizer Of An Element, Theorems Based On Normalizer And Centralizer Of An Element Of A Group
21 Nov, 2021	Sunday
4 th Week 22 Nov-27	AUTOMORPHISM OF A GROUP - CONTINUED Theorems Continued , Conjugate Subgroup, Commutator Subgroup, Theorems Based On Commutator Subgroup , Revision Of Homomorphisms, Isomorphisms And Automorphisms , Group Discussion On Normal Subgroup, Simple Group And Quotient Group, Test Of Homomorphisms, Isomorphisms And Automorphisms ,
28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	PERMUTATION GROUPS Definition Of Permutation, Equality Of Permutation, Composition Of Two Functions, Examples Based On Composition Of Two Functions , Identity Permutation, Inverse Of A Permutation, Permutation Group, Cyclic Permutation Of A Group, Examples Based On Cyclic Permutation, Transposition, Disjoint Cycles , Examples Based On Disjoint Cycles, Even And Odd Permutations , Alternating Group, Centre Of Permutation Of A Group, Cayley Theorem, Group Discussion On Permutation Groups
05 Dec, 2021	Sunday
2 nd Week 06 Dec -11 Dec	RINGS AND FIELDS

	Definition Of Ring And Types Of Rings, Examples, Rings With Or Without Zero Divisors, Definition Of Integral Domain, Skew Field And Field, Theorems Based On Integral Domain, Skew Field And Field , Examples Based On Integral Domain, Skew Field And Field , Examples Continued, Definition Of Subrings
12 Dec,2021	Sunday
3 rd week 13 Dec -18 Dec	SUBRINGS Definition Of Subrings And Theorems Based On Subrings , Centre Of A Ring And It's Theorems, Examples , Characteristics Of A Ring And Theorems On Characteristics Of A Ring , Group Discussion On Ring, Subring, Integral Domain, Skew Field And Field , Test Of Ring And Subring , Test Of Field, Subfields And Integral Domain
19 Dec,2021	Sunday
4 th Week 20 Dec-24 Dec	IDEALS AND QUOTIENT RINGS Definition Of Ideals,Examples Of Ideals,Sum Of Two Ideals,Ideal Generated By A Set, Product Of Two Ideals, Theorems On Ideals,Definition Of Principal Ideal,Unity Ideal,Maximal Ideal,Theorems Based On It, Theorems Continued , Examples Based On Principal Ideal, maximal IdealAnd Prime Ideal, Examples Continued,Definition Of Quotient Ring And Its Examples., Definition Of Ring Homomorphism, Examples And Theorems Based On It, Definition Of Ring Isomorphism
25 Dec,2021	Christmas
26 Dec,2021	Sunday
5 th Week 27 Dec -01 Jan	HOMOMORPHISM OF RINGS Kernel Of A Ring Homomorphism, Theorems Based On Kernel And Examples, Fundamental Theorem Of Ring Homomorphism, First Theorem Of Isomorphism., Second Theorem Of Isomorphism, Examples Based On Ring Isomorphism, Embedding Of Rings,Embedded Ring, Set Of Quotient Of A Ring,Theorem On Embedded Ring , Theorems Continued On Embedded Ring And Examples Based On It., Test Of Topic Ideals And Quotient Rings.

2 Jan ,2022	Sunday
Jan ,2022 1 st week 3 Jan – 8 Jan	EUCLIDEAN RINGS: Divisibility In A Commutative Ring,Unit Element,Theorems Based On Unit Element,Associates , Prime Element,Irreducible Elements,Gaussian Integers,Greatest Common Divisor,Least Common Multiple, Theorems Based On L.C.M And G.C.D,Euclidean Domain And Its Theorems , Principal Ideal Domain And Its Theorems, Theorems Continued And Examples
9 Jan ,2022	Sunday(Sh. Guru Gobind Singh's Birthday)

2 nd week 10 Jan – 15 Jan	POLYNOMIAL RINGS: Group Discussion On Euclidean Ring,Euclidean Domain,G.C.D,L.C.M, Polynomial Rings,Degree Of A Polynomial, Polynomial Over A Ring, Embedding Of R Into $R[X]$, Polynomials Over An Integral Domain, Theorems Based On Integral Domain, Polynomial Over A Field and Theorems Based On It, Ring Of Polynomials In N Variables Over An Integral Domain,Divisibility Of Polynomials Over A Field,
16 Jan ,2022	Sunday
3 rd week 17 Jan – 22 Jan	POLYNOMIAL RINGS CONTINUED: Divisor,Unit Element,Associates,Proper And Improper Divisors,Reducible And irreducible Element , G.C.D,Relatively Prime, Algorithm For $R[X]$, Remainder Theorem., Theorems And Examples Based On Principal Ideal Domain Definition Of Unique Factorization Domain And Theoems Based On U.F.D.
23 Jan ,2022	Sunday
4 th Week 24 Jan – 29 Jan	Theorems Continued, Lemma Of Ascending Chain Of Ideals , Primitive Polynomials, Irreducible Polynomials, Gauss Lemma, Converse Of Gauss Lemma ,Theorems On Units Of R And $R[X]$, Theorems Based On Irreducible Elments In $R[X]$, Field Of Quotients Of A U.F.D., Theorems And Lemma Based On It, Eisenstein's Irreducibility Criterion, Test Of Polynomial Rings

26 Jan, 2022	Republic Day
30 Jan ,2022	Sunday
Feb, 2021 1 st week 1 Feb-4 Feb	Revision
5 Feb, 2022	Vasant Panchmi
6 Feb ,2022	Sunday
2 nd week 7 Feb- 12 Feb	Revision
13 Feb ,2022	Sunday
3 rd week 14 Feb- 19 Feb	Revision

Name of the Teacher – MS.SILKY PURI
Subject- MATHEMATICS
Paper- BM-353(NUMERICAL ANALYSIS)
Class- B.SC./B.A.5TH SEM

October, 2021 2 nd Week 11 Oct-16 Oct	Finite difference operators,finding the missing terms and effect of errors in a difference tabular values.
15 Oct, 2021 17 Oct, 2021	(Dussehra) Sunday
3 th Week 18 Oct-23 Oct	Interpolation with equal and unequal intervals.Newton's forward interpolation formula.newton's Backward interpolation formula.
20 Oct, 2021	Maharishi Valmiki Jayanti

24 Oct, 2021	Sunday
May, 2021 4 th Week 25 Oct-30 Oct	Newton's divided difference.Lagrange's interpolation formula.Hermite's formula.
31 Oct, 2021	Sunday
November, 2021 1 st Week 1 Nov-7 Nov	(Haryana Day) Diwali Holidays
2nd Week 8 Nov-13 Nov	Central difference operators,Gauss forward interpolation formula ,Gauss backward interpolation formula.Sterling formula,Bessel's formula.
14 Nov, 2021	Sunday
3 rd Week 15 Nov-20 Nov	Numerical differentiation,probability distribution of random variable.
21 Nov, 2021	Sunday
4 th Week 22 Nov-27	Binomial distribution,poisson's distribution,normal distribution.
28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	Mean ,variance and fitting.introduction to eigen values problems.
05 Dec, 2021	Sunday
2 nd Week 06 Dec -11 Dec	Power method ,jacobi's method,given's method,House holder method.

12 Dec,2021	Sunday
3 rd week 13 Dec -18 Dec	QR method,lanczo's method.
19 Dec,2021	Sunday
4 th Week 20 Dec-24 Dec	Numerical integration .Numerical cote's quadrature formula.
25 Dec,2021	Christmas
26 Dec,2021	Sunday
5 th Week 27 Dec -01 Jan	Trapezoidal rule,simpson's one third rule and three eight rule.
2 Jan ,2022	Sunday
Jan ,2022 1 st week 3 Jan – 8 Jan	Chebyshev formula and Gauss quadrature formula.
9 Jan ,2022	Sunday(Sh. Guru Gobind Singh's Birthday)
2 nd Week 10 Jan – 15 Jan	Numerical solution of ordinary differential equations,single step method :picard method,taylor's method.
16 Jan ,2022	Sunday

3 rd week 17 Jan – 22 Jan	Euler's method ,Runga –kutta method .Multistep method;predictor-corrector method.
23 Jan ,2022	Sunday
4 th Week 24 Jan – 29 Jan	Milne's simpson methods and its questions.
26 Jan, 2022	Republic Day
30 Jan ,2022	Sunday
Feb, 2021 1 st week 31 Feb-4 Feb	Revision and tests.

5 Feb, 2022	Vasant Panchmi
6 Feb ,2022	Sunday
2 nd week 7 Feb- 12 Feb	Revision and tests.
13 Feb ,2022	Sunday
3 rd week 14 Feb- 19 Feb	Sessional

**Lesson plan for the odd semester
(October, 2021 to February, 2022)**

Name of the Teacher – Ms. Meenu Kalra

Subject- Mathematics

Paper- Business Mathematics

Class- B.Com. I

October, 2021 1 st Week 06 Oct-09 Oct	Sequence and types of sequence. Arithmetic Progression (A.P.) and related examples. Representation of terms in A.P. and examples. Questions
10 Oct.,2021	Sunday
October, 2021 2 nd Week 11 Oct-16 Oct	Sum of 'n' terms of an A.P. and examples Arithmetic Means Geometric means(G.P.) Examples
15 Oct, 2021 17 Oct, 2021	(Dussehra) Sunday
3 th Week 18 Oct-23 Oct	Sum of a G.P. upto infinity Geometric means Examples Application of A.P. and G.P. to business Mathematics Examples
20 Oct, 2021	Maharishi Valmiki Jayanti

24 Oct, 2021	Sunday
4th Week 25 Oct-30 Oct	Algebra of matrices Examples Basic operations on matrices Multiplication of matrices Examples
31 Oct, 2021	Sunday
November, 2021 1st Week 1 Nov-7 Nov	(Haryana Day) Diwali Holidays
2nd Week 8 Nov-13 Nov	Examples Positive integral power of matrices Transpose of a matrix Examples Determinants Examples
14 Nov, 2021	Sunday
3rd Week 15 Nov-20 Nov	Minor and cofactors Properties of determinants Examples Continued...
21 Nov, 2021	Sunday

4 th Week 22 Nov-27	Adjoint of a matrix Examples Inverse of a square matrix Examples
-----------------------------------	---

28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	Examples Inverse of a square matrix using Elementary operations Solution of system of equations by using elementary operations Examples
05 Dec, 2021	Sunday
2 nd Week 06 Dec -11 Dec	Solution of system of equations by using Cramer's Rule Solution of system of linear equations using Matrices Application of matrix in particular problems Examples
12 Dec,2021	Sunday
3 rd week 13 Dec -18 Dec	Examples Class Discussion Student problems Class Test & Problems
19 Dec,2021	Sunday
4 th Week 20 Dec-24 Dec	Compound Interest Simple interest and related examples General formula for determination of compound interest Examples Examples
25 Dec,2021	Christmas

26 Dec,2021	Sunday
5 th Week 27 Dec -01 Jan	Continuous Compounding of interest Problem on effective rate of interest Examples Continued...
2 Jan ,2022	Sunday
Jan ,2022 1 st week 3 Jan – 8 Jan	Differentiation Derivative using first principle General theorems on Differentiation Examples Differentiation of products of two function Differentiation using chain rule method Examples
9 Jan ,2022	Sunday(Sh. Guru Gobind Singh's Birthday)
2 nd week 10 Jan – 15 Jan	Differentiation of logarithmic and exponential functions Examples Logarithmic Differentiation Examples Differentiation of parametric functions Derivative of higher order Examples
16 Jan ,2022	Sunday
3 rd week 17 Jan – 22 Jan	Maxima and minima Examples Second derivative test for finding local maxima and minima Examples

23 Jan ,2022	Sunday
4th Week 24 Jan – 29 Jan	Absolute maxima and absolute Minima Problems on maxima and minima Examples Optimization of economic functions Examples
26 Jan, 2022 30 Jan ,2022	Republic Day Sunday
Feb, 2021 1st week 1 Feb-4 Feb	Logarithms Examples Product and quotient formula for logarithms Examples
5 Feb, 2022 6 Feb ,2022	Vasant Panchmi Sunday
2nd week 7 Feb- 12 Feb	Two system of logarithms Tables of logarithms Examples Annuity and related examples Present value of an annuity and examples Solution of particular Problems EXAMPLES
13 Feb ,2022	Sunday
3rd week 14 Feb- 19 Feb	REVISION

**Lesson plan for the odd semester
(October, 2021 to February, 2022)**

Name of the Teacher – Ms.SILKY PURI

Subject- MATHS

Paper-BBA-104

Class- BBAI(SEM I)

October, 2021 2 nd Week 11 Oct-16 Oct	Sets theory:representations of sets.types of sets.different operations of a set.venn diagrams.practicle applications of sets.
15 Oct, 2021 17 Oct, 2021	(Dussehra) Sunday
3 th Week 18 Oct-23 Oct	Logical statement and truth tables:truth tables,compound statements.
20 Oct, 2021 24 Oct, 2021	Maharishi Valmiki Jayanti Sunday
May, 2021 4 th Week 25 Oct-30 Oct	Conjunction,disjunction,logical equivalence,laws of logic,conditional statements,quantifiers with examples and exercises.
31 Oct, 2021	Sunday
November, 2021 1 st Week 1 Nov-7 Nov	(Haryana Day) Diwali Holidays
2nd Week 8 Nov-13 Nov	Linear and quadratic equations :degree of an equation ,roots of an equation.
14 Nov, 2021	Sunday
3 rd Week 15 Nov-20 Nov	Simultaneous linear equations ,linear laws of demand and supply equations.
21 Nov, 2021	Sunday

4 th Week 22 Nov-27	Market equilibrium, methods of solving a quadratic equation. permutations and combinations: factorial, permutations with repetitions.
28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	Circular permutations, circular combinations, practical problems on permutations and combinations.
05 Dec, 2021	Sunday
2 nd Week 06 Dec -11 Dec	Binomial theorems: binomial theorems for a positive integral index, determination of a particular term from end.
12 Dec, 2021	Sunday
3 rd week 13 Dec -18 Dec	Middle term in a binomial expansion, application of binomial theorem.
19 Dec, 2021	Sunday
4 th Week 20 Dec-24 Dec	Limits and continuity : functions, limit of a function, infinite limits, evaluation of limits.
25 Dec, 2021	Christmas
26 Dec, 2021	Sunday
5 th Week 27 Dec -01 Jan	Continuity of a function, algebra of continuous functions, differential calculus: derivative of a function, first principle.
2 Jan, 2022	Sunday
Jan, 2022 1 st week 3 Jan – 8 Jan	Product rule, quotient rule, chain rule, differentiation of a logarithmic and exponential function, derivatives of higher order, maxima and minima of a function.
9 Jan, 2022	Sunday (Sh. Guru Gobind Singh's Birthday)
2 nd Week 10 Jan – 15 Jan	Matrices : meaning and elementary operations on matrices, inverse of a matrix.
16 Jan, 2022	Sunday

3 rd week 17 Jan – 22 Jan	Solution to linear equations (based on payroll ,wages and commission)using crammer’s rule,solutions to linear equations using matrix inversion method.
23 Jan ,2022	Sunday
4 th Week 24 Jan – 29 Jan	Problem discussion.
26 Jan, 2022	Republic Day
30 Jan ,2022	Sunday
Feb, 2021 1 st week 31 Feb-4 Feb	Revision and tests.
5 Feb, 2022	Vasant Panchmi
6 Feb ,2022	Sunday
2 nd week 7 Feb- 12 Feb	Revision and tests.
13 Feb ,2022	Sunday
3 rd week 14 Feb- 19 Feb	Sessional

Name of the Teacher – Ms. SILKY PURI
Subject- MATHS
Paper- MATHEMATICAL FOUNDATIONS-I
Class- BCA-I

October, 2021 2 nd Week 11 Oct-16 Oct	Sets,subsetsand operations on sets.,venn diagram of sets.
15 Oct, 2021	(Dussehra)
17 Oct, 2021	Sunday
3 th Week 18 Oct-23 Oct	Permutation and combinations.partially ordered sets.lattices.boolean algebra.
20 Oct, 2021	Maharishi Valmiki Jayanti

24 Oct, 2021	Sunday
May, 2021 4 th Week 25 Oct-30 Oct	Epsilon and delta function of the continuity of a function of a single variable.basic properties of limits ,continuous functions and classification of discontinuities.
31 Oct, 2021	Sunday
November, 2021 1 st Week 1 Nov-7 Nov	(Haryana Day) Diwali Holidays
2nd Week 8 Nov-13 Nov	Derivative of a function .derivative of logarithmic,exponential,trigonometrical functions.derivative of inverse trigonometrical functions.derivatives of hyperbolic functions
14 Nov, 2021	Sunday
3 rd Week 15 Nov-20 Nov	Higher order derivatives.formation of differential equations.discuss about examples and exercises.
21 Nov, 2021	Sunday
4 th Week 22 Nov-27	Order and degree of differential equation.geometrical approach to the existence of the solution of the differential equation $dy/dx=f(x,y)$ Problem discussion and revision.

28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	Ordinary differential equations.differential equation of first order and first degree.exact differential equations.
05 Dec, 2021	Sunday
2 nd Week 06 Dec -11 Dec	Linear differential equations of higher order with constant coefficients.homogeneous linear differential equations with examples
12 Dec,2021	Sunday

3 rd week 13 Dec -18 Dec	Linear differential equations reducible to homogeneous differential equations with examples and exercises.
19 Dec,2021	Sunday
4 th Week 20 Dec-24 Dec	Application of differential equations to geometry.
25 Dec,2021 26 Dec,2021	Christmas Sunday
5 th Week 27 Dec -01 Jan	Revision and class tests.
2 Jan ,2022	Sunday
Jan ,2022 1 st week 3 Jan – 8 Jan	Revision and class tests.
9 Jan ,2022	Sunday(Sh. Guru Gobind Singh's Birthday)
2 nd Week 10 Jan – 15 Jan	Problem discussion:differential equations
16 Jan ,2022	Sunday

3 rd week 17 Jan – 22 Jan	Revision and tests.
23 Jan ,2022	Sunday
4 th Week 24 Jan – 29 Jan	Revision and tests.
26 Jan, 2022 30 Jan ,2022	Republic Day Sunday
Feb, 2021 1 st week 31 Feb-4 Feb	Revision and tests.

5 Feb, 2022	Vasant Panchmi
6 Feb ,2022	Sunday
2 nd week 7 Feb- 12 Feb	Revision and tests.
13 Feb ,2022	Sunday
3 rd week 14 Feb- 19 Feb	Sessional

**Lesson plan for the odd semester
(October, 2021 to February, 2022)**

Name of the Teacher – Ms. MEENU KALRA

Subject- MATHEMATICS

Paper- COMPUTER ORIENTED NUMERICAL METHODS

Class- B.C.A. SEM 3

October, 2021 1st Week 06Oct-09Oct	Iterative Method, Bisection Method False Position Questions Newton-Raphson Method Questions
	Sunday
October, 2021 2 nd Week 11 Oct-16 Oct	Iteration Method Discussion of convergence Questions Questions Students problems
15 Oct, 2021 17 Oct, 2021	(Dussehra) Sunday

3 th Week 18 Oct-23 Oct	Bairdow's method Continued Computer arithmetic: Floating point representation of numbers Arithmetic operations with normalized floating point numbers Continued
20 Oct, 2021 24 Oct, 2021	Maharishi Valmiki Jayanti Sunday
4 th Week 25 Oct-30 Oct	Consequences of floating point numbers Significant figures Error in number representation inherent error, truncation error Absolute error Relative error Students Problems
31 Oct, 2021	Sunday
November, 2021 1 st Week 1 Nov-7 Nov	(Haryana Day) Diwali Holidays
2 nd Week 8 Nov-13 Nov	Percentage error Roundoff error Questions Questions Continued
14 Nov, 2021	Sunday
3 rd Week 15 Nov-20 Nov	Gauss Elimination Method Questions Continued Pivoting Students Problems

21 Nov, 2021	Sunday
4 th Week 22 Nov-27	Ill conditioned equations Refinement of solutions,Gauss seidal iterative method Questions Continued
28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	Gauss elimination methods Pivoting Ill-conditioned equations Questions
05 Dec, 2021	Sunday
2 nd Week 06 Dec -11 Dec	Euler's Method Euler modified method Taylor-series method Questions Runga- Kutta Methods Questions
12 Dec,2021	Sunday
3 rd week 13 Dec -18 Dec	Predictor Corrector Methods Questions Interpolation and Approximations Polynomial interpolation Newton Lagranges Methods Difference tables Questions
19 Dec,2021	Sunday
4 th Week 20 Dec-24 Dec	Approximation of functions by Taylor Series Questions Chebyshev polynomial:First kind,Second kind and their relations

	Orthogonal Properties Questions
25 Dec,2021 26 Dec,2021	Christmas Sunday
5 th Week 27 Dec -01 Jan	Numerical Differentiation and integration Questions Differential equations Questions Based on polynomials fit,pitfalls in differentiation Questions
2 Jan ,2022	Sunday
Jan ,2022 1 st week 3 Jan – 8 Jan	Student Problems Class test Trapezoidal Rule Questions Questions Continued..
9 Jan ,2022	Sunday(Sh. Guru Gobind Singh's Birthday)
2 nd week 10 Jan – 15 Jan	Questions Questions
16 Jan ,2022	Sunday
3 rd week 17 Jan – 22 Jan	Simpsons Rules Questions
23 Jan ,2022	Sunday
4 th Week 24 Jan – 29 Jan	Gaussian Quardature Questions Questions

26 Jan, 2022	Republic Day
30 Jan ,2022	Sunday
Feb, 2021 1 st week 1 Feb-4 Feb	Class Test Student Problem
5 Feb, 2022 6 Feb ,2022	Vasant Panchmi Sunday
2 nd week 7 Feb- 12 Feb	Topic wise Problems for students Class test Revision
13 Feb ,2022	Sunday
3 rd week 14 Feb- 19 Feb	REVISION

KVA DAV College for Women, Karnal

Lesson plan for the odd semester (October, 2021 to February, 2022)

Name of the Teacher – Ms. Sakshi

Subject- Mathematics

Paper-Algebra(MM-401)

Class- M.Sc. Mathematics(Sem I)

November, 2021 3 rd Week 15 Nov-20 Nov	Automorphisms Of A Group G And Its Theorems.,Inner Automorphisms Of A Group G And Its Theorems,The Groups $\text{Aut}(G)$ And $\text{Inn}(G)$ Automorphisms Group Of A Cyclic Group And Its TheoremsTheorems Based On Normalizer And Centralizer Of A Non-Empty Subset Of A Group G .
19 Nov,2021 21 Nov, 2021	Guru Nanak Jayanti Sunday
4 th Week 22 Nov-27 Nov	Conjugate Elements And Conjugate Classes,Class Equation Of A Finite Group And Its Application.,Derived Group Of A Group G .,Perfect Group And Its Theorems
28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	Zessenhau's Lemma.Definition Of Normal And Composition Series Of A Group G .Scheier's Refinement Theorem.Jordan Holder TheoremComposition Series Of Groups Of Order p^n Of Abelian GroupsCauchy Theorem For Finite Group π Groups And P-Groups.Sylow π Subgroups And Its Theorems
05 Dec, 2021	Sunday
2 nd Week 06 Dec -11 Dec	Sylow's 1 st AND, 2 nd Theorems,Sylow's Third Theorem Application Of Sylow Theory To Groups Of Smaller Orders. Characteristic Of A Ring With Unity, Prime Fields $\mathbb{Z}/p\mathbb{Z}$ And $\mathbb{Q}$. Fields Extensions And Its Theorems Test Of Zessenhau's Lemma, Scheier's Refinement Theorem And Jordan Holder Theorem.
12 Dec,2021	Sunday
3 rd week 13 Dec -18 Dec	Degree Of An ExtensionAlgebraic And Transcendental Elements .Theorems Based On Algebraic Elements,Simple Field Extensions And Its Theorems,Minimal Polynomial Of An Algebraic Element And Its Theorems,Theorems Continued And Examples Based On It.
19 Dec,2021	Sunday

4 th Week 20 Dec-24 Dec	Theorems Based On Conjugate Elements, Algebraic Extensions And Its Theorems, Finitely Generated Algebraic Extensions, Algebraic Closure And Algebraically Closed Fields. Theorems Based On It.
25 Dec, 2021 26 Dec, 2021	Merry Christmas Sunday
5 th Week 27 Dec -01 Jan	Splitting Fields And its Theorems, Finite Fields, Normal Extensions And Its Theorems, Group Discussion On Algebraic Elements And Algebraic Extensions, Separable Elements, Separable Polynomials And Separable Extensions. Theorems Based On It.
2 Jan ,2022	Sunday
Jan ,2022 1 st week 3 Jan – 8 Jan	Theorem Of Primitive Element, Perfect Field And Its Theorems. Theorems Continued Galois extensions, Galois group of an extension and its theorems Theorems Continued. Theorems Continued.
9 Jan ,2022	Sunday (Sh. Guru Gobind Singh's Birthday)
2 nd week 10 Jan – 15 Jan	Dedekind Lemma, Fundamental Theorem Of Galois Theory Fundamental Theorem Of Galois Theory Continued Test On Topic Minimal Polynomial, Conjugate Elements And Splitting Fields Frobenius Automorphisms Of A Finite Field Klein's 4-Group And Dihedral Group. Theorems Based On It. Theorems Continued.
16 Jan ,2022	Sunday
3 rd week 17 Jan – 22 Jan	Galois Groups Of Polynomials And Its Theorems Fundamental Theorem Of Algebra Test Of Galois Extensions, Galois Group And Fundamental Theorem Of Galois Theory. Solvable Groups And Its Theorems. Theorems Continued Theorems Continued
23 Jan ,2022	Sunday
4 th Week 24 Jan – 29 Jan	Derived Series Of A Group G, Simplicity Of The Alternating Group A_n .

	Nonsolvability Of The Symmetric Group S_n And The Alternating Group A_n. Theorems Based On It. Theorems Continued. Roots Of Unity And Its Theorems
26 Jan, 2022 30 Jan ,2022	Republic Day Sunday
Feb, 2021 1st week 1 Feb-4 Feb	Cyclotomic Polynomials And Their Irreducibility Over $\mathbb{Q}$.Theorems Based On It,Radicals Extensions And Its Theorems Theorems Continued Galois Radical Extensions And Its Theorems. Theorems Continued.
5 Feb, 2022 6 Feb ,2022	Vasant Panchmi Sunday
2nd week 7 Feb- 12 Feb	Test On Solvable Group, Roots Of Unity And Cyclotomic Polynomials Cyclic Extensions And Its Theorems. Theorems Continued... . Theorems Based On It
13 Feb ,2022	Sunday
3rd week 14 Feb- 19 Feb	Solvability Of Polynomials By Radicals Over $\mathbb{Q}$. Theorems Based On It. Theorems Continued Symmetric Function And Elementary Symmetric Functions
16 Feb,2022 20 Feb ,2022	Ravidass Jayanti Sunday
4th week 21 Feb- 26 Feb	Theorems Continued Construction With Ruler And Compass Only. Theorems And Examples Based On Construction With Ruler And Compass
27 Feb ,2022	Sunday
1st week 28 Feb-4 Mar	Sessional test

KVA DAV College for Women, Karnal

Lesson plan for the odd semester (October, 2021 to February, 2022)

Name of the Teacher – Ms. Rakhi

Subject- Mathematics

Paper- Real Analysis-i(MM-402)

Class- M.Sc(Sem-I)

4 th Week 22 Nov-27	Section-I , An Introduction to Riemann Stieltjes Integral. Definition of Riemann Stieltjes Integral. Existence of Riemann Stieltjes Integral. Properties of the Riemann Stieltjes Integral. Integration and Differentiation under integral.
28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	Integration and Differentiation under integral continued. The Fundamental Theorem of Integral Calculus. Introduction to Integration by Parts. Integration of Vector Valued Functions.
05 Dec, 2021	Sunday
2 nd Week 06 Dec -11 Dec	Integration of Vector Valued Functions continued. Introduction to Rectifiable curves. Discuss student problems related to section 1st. Test
12 Dec,2021	Sunday
3 rd week 13 Dec -18 Dec	Section-II ,Introduction to pointwise and uniform convergence. Difference between pointwise and uniform convergence. Cauchy criterion for uniform convergence. Introduction to Weirstrass M-test Abel's test and Dirichlet's test for uniform convergence.
19 Dec,2021	Sunday
4 th Week 20 Dec-24 Dec	Discuss student problems on above topics. Introduction to uniform convergence and continuity.

	Uniform convergence and Riemann Stieltjes integration. Uniform convergence and differentiation.
25 Dec,2021 26 Dec,2021	Christmas Sunday
5th Week 27 Dec -01 Jan	Existence of a real continuous nowhere differentiable function. Introduction to Equicontinuous families of functions. Difference between continuous, uniform continuous and equicontinuous functions. Revision. Class Test.
2 Jan ,2022	Sunday
Jan ,2022 1st week 3 Jan – 8 Jan	Weierstrass Approximation Theorem. Discuss student problems related to section-2nd. Section-III, An Introduction to Functions of Several variables. Linear Transformations and derivative in an open subset of R^n.
9 Jan ,2022	Sunday(Sh. Guru Gobind Singh's Birthday)
2nd week 10 Jan – 15 Jan	Introduction to chain rule, partial derivatives, directional derivatives and the Contraction Principle. Inverse Function Theorem. Implicit Function Theorem.
16 Jan ,2022	Sunday
3rd week 17 Jan – 22 Jan	Above Continued... Introduction to Jacobians, extremum problems with constraints and Lagrange's Multiplier method. Derivative of higher order, Mean value theorem for real functions of two variables. Interchange of order of differentiation and differentiation of integrals.

23 Jan ,2022	Sunday
4 th Week 24 Jan – 29 Jan	Topic continued... Discuss student problems on section-3rd. Section-IV,Introduction to Power Series. Uniqueness theorem for power series. Abel's lemma and Abel's theorem. Tauber's theorem.
26 Jan, 2022 30 Jan ,2022	Republic Day Sunday
Feb, 2021 1 st week 1 Feb-4 Feb	Taylor's theorem. Exponential and Logarithmic functions. Discuss student problems. Test
5 Feb, 2022 6 Feb ,2022	Vasant Panchmi Sunday
2 nd week 7 Feb- 12 Feb	Properties of Exponential and Logarithmic functions. Trigonometric functions and their properties. Fourier series and Gamma Function.
13 Feb ,2022 16 Feb,2022	Sunday Ravidas Jayanti
3 rd week 14 Feb- 19 Feb	Topic continued... An Introduction to Integration of differential forms. Partitions of Unity and differential forms. Topic continued... Test
20 Feb ,2022	Sunday
4 th week 21Feb- 26 Feb	Stokes Theorem. Discuss student problems. Discuss student problems. Test
27 Feb ,2022	Sunday
1 st week 28 Feb- 04Mar	Revision of Syllabus Revision of Syllabus

	Sessional test
--	----------------

KVA DAV College for Women, Karnal

Lesson plan for the odd semester

(October, 2021 to February, 2022)

Name of the Teacher – Ms. Rakhi

Subject- Mathematics

Paper- Topology(MM-403)

Class- M.Sc(Previous)

4 th Week 22 Nov-27	Definition and examples of a topological spaces, neighbourhoods, neighbourhood system of a point and its properties. Interior point and interior of a set, interior as an operator and its properties. Definition of closed set as complement of open set. Limit point of a set, derived set of a set, definition of closure of a set as union of the set and its derived set. Adherent point of a set, closure of a set as set of adherent point, properties of closure, closure as an operator and its properties. Boundary of a set, dense sets, a characterization of dense sets. Base for a topology and its characterization. Base for neighbourhood system subbase for a topology. relative topology and subspace of a T.S.
28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	Alternate examples of defining a topology using properties of 'Nbd system', 'interior operator', 'closed sets', kuratowski closure operator and base. First countable, second countable and separable spaces, their relationships and hereditary property. About countability of a collection of disjoint open sets in a separable and a second countable space. Lindelof theorem. Comparison of topologies on a set. Test and revision.
05 Dec, 2021	Sunday
2 nd Week 06 Dec -11 Dec	About intersection and union of topologies. Infimum and supremum of a collection of topologies on a set. Test and revision The collection of all topologies on a set as a complete lattice.

	Questions for problems. Definition , examples and characterizations of continuous functions. Composition of cts functions, open and closed functions, homeomorphism .
12 Dec,2021	Sunday
3rd week 13 Dec -18 Dec	Test and revision Embedding, tychonoff product topology in terms of standard subbase. Related examples Projection maps, their continuity and openness.characterization of product topology as the smallest topology with projection continuous. Continuity of a function from a space into a product of spaces. T_0 ,T_1 space.
19 Dec,2021	Sunday
4th Week 20 Dec-24 Dec	T_2 , Regular and T_3 separation axioms, their characterization . Examples on these spaces. Basic properties i.e. hereditary property of T_0, T_1, regular and T_3 spaces. Test and revision.
25 Dec,2021	Christmas
26 Dec,2021	Sunday
5th Week 27 Dec -01 Jan	Do some practice sum. About hausdorffness of quotient space. Test and revision. Productive property of T_1 and T_2 spaces. Quotient topology w.r.t. a map. Related examples. Continuity of a function with domain a space having quotient space. Completely regular and tychonoff spaces, their hereditary and productive properties
2 Jan ,2022	Sunday
Jan ,2022 1st week	Embedding lemma and embedding theorem. Normal and T_4 spaces: definitions and examples.

3 Jan – 8 Jan	Solve Practice sum and discuss them. Urysohn's lemma, complete regularity of a regular normal space. T_4 implies Tychonoff, Tietze's extension theorem (statement only).
9 Jan ,2022	Sunday(Sh. Guru Gobind Singh's Birthday)
2 nd week 10 Jan – 15 Jan	Definition and examples of filters on a set. Collection of all filters on a set as a p.o. set, finer filters. Methods of generating filters/finer filters, ultra filter (u.f.) and its characterizations. Ultra filter principle. Test and revision. Discuss related problems.
16 Jan ,2022	Sunday
3 rd week 17 Jan – 22 Jan	Image of filter under a function. Convergence of filters : limit point and limit of a filter and relationship between them. Continuity in terms of convergence of filters, Hausdorffness and filter convergence. Test and revision Continuity and compact set, compactness and separation properties. COMPACTNESS: definitions and examples of compact spaces. Definition of a compact subset as a compact subspace. Related examples
23 Jan ,2022	Sunday
4 th Week 24 Jan – 29 Jan	Relation of open cover of a subset of a T.S. in the subspace with that in the main space. Compactness in terms of finite intersection property (f.i.p.). Regularity and normality of a compact Hausdorff space. Compactness and filter convergence.
26 Jan, 2022	Republic Day
30 Jan ,2022	Sunday
Feb, 2021 1 st week	Convergence of filter in a product space. Tychonoff product theorem using filters.

1 Feb-4 Feb	Practice questions. Related examples. Test and revision. Questions related to above topic.
5 Feb, 2022 6 Feb ,2022	Vasant Panchmi Sunday
2 nd week 7 Feb- 12 Feb	Tychonoff space as a subspace of a compact hausdroff space and its converse. related examples related examples Compactness and hausdroff compactification. Test and revision Stone- Cech compactification.
13 Feb ,2022 16 Feb,2022	Sunday Ravidas Jayanti
3 rd week 14 Feb- 19 Feb	related examples Closedness of compact subset, closedness of continuous map from a compact space into a hausdroff space and its convergence. Group discussion on different topologies. Test and revision
20 Feb ,2022	Sunday
4 th week 21Feb- 26 Feb	Examples for revision., Assignment on compactness. related examples
27 Feb ,2022	Sunday
1 st week 28 Feb- 04Mar	

KVA DAV College for Women, Karnal

Lesson plan for the odd semester (October, 2021 to February, 2022)

Name of the Teacher – Ms. Monila Bansal

Subject- Mathematics

Paper- Complex Analysis-I(MM-404)

Class- M.Sc. Mathematics(Sem I)

November, 2021	An introduction to Complex analysis
3 rd Week	Introduction to power series and its convergence
15 Nov-20 Nov	Theorems based on sum, product of power series and its radius of convergence Examples based on radius of convergence Differentiability of sum function of power series
19 Nov,2021	Guru Nanak Jayanti
21 Nov, 2021	Sunday
4 th Week	Exp(z) and its properties
22 Nov-27	Theorem based on branch of logarithm Power of a complex number, their branches and analyticity Definition :path in a region, smooth path, contour,simple connected region and multiple connected region Theorem based on bounded variation and total variation
28 Nov, 2021	Sunday
Dec, 2021	Complex integration and related examples
1 st Week	Cauchy goursat theorem
29 Nov-04 Dec	Cauchy theorem for simply and multiple connected domain
05 Dec, 2021	Sunday
2 nd Week	Cauchy integral formula
06 Dec -11 Dec	Extension of Cauchy integral formula for multiple connected domain Higher order derivative of Cauchy integral formula Examples related to Cauchy integral formula Gauss mean value theorem
12 Dec,2021	Sunday
3 rd week	Morera's theorem
13 Dec -18 Dec	Fundamental theorem of algebra

	Entire functions and radius of convergence Cauchy inequality and liouville's theorem Theorem and examples based on liouville's theorem
19 Dec,2021	Sunday
4 th Week 20 Dec-24 Dec	Winding number of a closed curve with some properties Zero of an analytic function Entire function and its radius of convergence Taylor's theorem Theorem based examples
25 Dec,2021 26 Dec,2021	Merry Christmas Sunday
5 th Week 27 Dec -01 Jan	Laurent's series example related to laurent's series Maximum modulus principle Minimum modulus principle Schwarz lemma Theorem based on Schwarz lemma
2 Jan ,2022	Sunday
Jan ,2022 1 st week 3 Jan – 8 Jan	Singularity and their classification Pole of a function and its order Examples based on singularities Riemann theorem
9 Jan ,2022	Sunday(Sh. Guru Gobind Singh's Birthday)
2 nd week 10 Jan – 15 Jan	Cassorati-weierstrass theorem Meromorphic function ,poles and zeros of meromorphic function Argument principle Rouche's theorem Example based on rouche's theorem
16 Jan ,2022	Sunday
3 rd week 17 Jan – 22 Jan	Inverse function theorem Related examples Def: residue Example based on residue of a pole

	Residue at infinity
23 Jan ,2022	Sunday
4 th Week 24 Jan – 29 Jan	Cauchy residue theorem Theorem based on residue Liouville theorem based on residue theorem Example on Cauchy residue theorem
26 Jan, 2022 30 Jan ,2022	Republic Day Sunday
Feb, 2021 1 st week 1 Feb-4 Feb	Integral type I Integral type II
5 Feb, 2022 6 Feb ,2022	Vasant Panchmi Sunday
2 nd week 7 Feb- 12 Feb	Integral type III Integral type IV
13 Feb ,2022	Sunday
3 rd week 14 Feb- 19 Feb	Bilinear transformation ,their properties Inverse ,magnification,rotation,inversion transformation Critical points Cross ratio and its example
16 Feb,2022 20 Feb ,2022	Ravidass Jayanti Sunday
4th week 21 Feb- 26 Feb	Preservance of cross ratio under bilinear transformation Preservance of circle and straight line under bilinear transformation Fixed point bilinear transformation Normal form of bilinear transformation Definition: conformal mapping Theorem based on conformal mapping
27 Feb ,2022	Sunday
1 st week 28 Feb-4 Mar	Sessional test

KVA DAV College for Women, Karnal

Lesson plan for the odd semester (October, 2021 to February, 2022)

Name of the Teacher – Ms.Rakhi

Subject- Mathematics

Paper- Differential Equations-I(MM-405)

Class- M.Sc(Previous)

4 th Week 22 Nov-27	Definition of initial value problem and equivalent integral equation Definition of E-approximate solution and examples Equicontinuous set of functions Ascoli -Arzela theorem Cauchy-Peano existence theorem and it's corollary
28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	Definition of Lipschitz condition and examples Differential inequalities and uniqueness Gronwall 's inequality Successive approximation with examples Group discussion Picard-Lindelof theorem
05 Dec, 2021	Sunday
2 nd Week 06 Dec -11 Dec	Continuation of solution Maximal interval of existence Extension theorem Kneser'stheorem (statement only) Revision Definition and notations of linear differential system
12 Dec,2021	Sunday
3 rd week 13 Dec -18 Dec	Linear homogenous system Definition of fundamental matrix and Adjoint system Reduction to smaller homogenous system Non-homogeneous linear system Test Variation of constants
19 Dec,2021	Sunday

4 th Week 20 Dec-24 Dec	Linear system with constant coefficients Linear system with periodic coefficients Floquet theory Group discussion Test
25 Dec,2021 26 Dec,2021	Christmas Sunday
5 th Week 27 Dec -01 Jan	Linear differential equation of order n Linear combinations and examples Linear dependence and linear independence solutions Definition, necessary and sufficient condition for linear dependence and linear independent solutions of homogeneous linear differential equation Revision Abel's Identity
2 Jan ,2022	Sunday
Jan ,2022 1 st week 3 Jan – 8 Jan	Fundamental set Wronskian theory and examples Test Reduction of order Non-homogenous linear differential equation Group discussion
9 Jan ,2022	Sunday(Sh. Guru Gobind Singh's Birthday)
2 nd week 10 Jan – 15 Jan	Variation of parameters Adjoint equations Lagrange's Identity Green's formula Linear equation of order n with constant coefficients Numericals
16 Jan ,2022	Sunday
3 rd week 17 Jan – 22 Jan	Revision Test Group discussion

	System of differential equations The n-th order equation Revision
23 Jan ,2022	Sunday
4 th Week 24 Jan – 29 Jan	Test Dependence of solutions on initial conditions and parameters Examples Group discussion Test Preliminaries
26 Jan, 2022	Republic Day
30 Jan ,2022	Sunday
Feb, 2021 1 st week 1 Feb-4 Feb	Definition of Continuity Definition of differentiability Definition of maximal and minimal solutions Group discission Differential inequalities Numericals
5 Feb, 2022	Vasant Panchmi
6 Feb ,2022	Sunday
2 nd week 7 Feb- 12 Feb	Theorem of wintner Uniqueness theorems Kamke's theorem
13 Feb ,2022 16 Feb,2022	Sunday Ravidas Jayanti
3 rd week 14 Feb- 19 Feb	Osgood theorem,group discussion Numerical of Lipschitz condition
20 Feb ,2022	Sunday

4 th week 21Feb- 26 Feb	Numerical of picard- lindelof theorem Numerical of fundamental matrix Numerical of variation of parameters Numerical of Wronskian theory Numerical of linear combinations,linear dependent and independent solutions
27 Feb ,2022	Sunday
1 st week 28 Feb- 04Mar	Sessional test

KVA DAV College for Women, Karnal

Lesson plan for the odd semester (October, 2021 to February, 2022)

Name of the Teacher – Ms. SAKSHI

Subject- Mathematics

Paper- Functional Analysis (MM-501)

Class- M.Sc.(III semester)

October, 2021 2 nd Week 11 Oct-16 Oct	Normed Linear Space. Banach Space And Examples.
15 Oct, 2021 17 Oct, 2021	(Dussehra) Sunday
3 th Week 18 Oct-23 Oct	Theorems Based On Subspace Of A Banach Space. Completion Of Normed Space And its theorems. Quotient Space Of Normed Linear Space, And Its Completeness. Product Of Normed Space.
20 Oct, 2021 24 Oct, 2021	Maharishi Valmiki Jayanti Sunday
4 th Week 25 Oct-30 Oct	Finite Dimensional Normed Space And Subspaces. Equivalent Norms And Its Theorems. Compactness And Finite Dimension .Theorems Based On It.
31 Oct, 2021	Sunday
November, 2021 1 st Week 1 Nov-7 Nov	(Haryana Day) Diwali Holidays
2nd Week 8 Nov-13 Nov	F.Riesz 'S Lemma. Test Of Normed Linear And Banach Space. Bounded And Continuous Linear Space. Theorems Based On Bounded And Continuous Linear Operator. Differentiation Operator And Its Examples. Integral Operator And Examples.

14 Nov, 2021	Sunday
3 rd Week 15 Nov-20 Nov	Bounded Linear Extension And Theorems Based On It. Linear Functional. Group Discussion On Completion Of A Normed Space. Continuity And Boundedness. Definite Integral. Theorems Based On Canonical Mapping.
19 Nov,2021 21 Nov, 2021	Guru Nanak jayanti Sunday
4 th Week 22 Nov-27	Linear Operator And Functional On Finite Dimensional Spaces. Normed Spaces Of Operators. Dual spaces With Examples. Examples Continued. Hahn-Banach Theorem For Real Linear Spaces.
28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	Hahn-Banach Theorem For Complex Linear Spaces. Hahn-Banach Theorem For Normed Linear Spaces. Application To Bounded Linear Functional On $C[A,B]$ Riesz-Representation Theorem For Bounded Linear Functional On $C[A,B]$ Adjoint Operator ,Norm Of The Adjoint Operator .Examples Based On It. Reflexive Spaces And Its Theorems.
05 Dec, 2021	Sunday
2 nd Week 06 Dec -11 Dec	Theorems Continued. Uniform Boundedness Theorems And Its Applications To The Space Of Polynomials And Fourier Series. Test Of Hahn-Banach Theorems. Strong And Weak Convergence .Theorems On Strong And Weak Convergence. Weak Convergence In L_p . Convergence Of Sequences Of Operators.
12 Dec,2021	Sunday
3 rd week 13 Dec -18 Dec	Uniform Operator Convergence. Strong Operator Convergence And its theorems.

	Weak Operator Convergence And Its Theorems. Strong And Weak Convergence Of A Sequence Of Functional. Open Mapping Theorem. Bounded Inverse Theorem.
19 Dec,2021	Sunday
4th Week 20 Dec-24 Dec	Closed Linear Operators. Closed Graph Theorem. Differential Operator And Examples Based On It. Relation Between Closedness And Boundedness Of A Linear Operator. Inner Product Space And Its Examples. Hilbert Space And Their Examples.
25 Dec,2021	Christmas
26 Dec,2021	Sunday
5th Week 27 Dec -01 Jan	Examples Continued. Pythagorean Theorem. Apolloniu's Identity Schwarz Inequality. Continuity Of Inner Product .Examples Based On It.
2 Jan ,2022	Sunday
Jan ,2022 1st week 3 Jan – 8 Jan	Completion Of An Inner Product Space. Subspace Of A Hilbert Space. Orthogonal Complements And Direct Sum .Theorems Based On It. Projection Theorem
9 Jan ,2022	Sunday(Sh. Guru Gobind Singh's Birthday)
2nd week 10 Jan – 15 Jan	Orthonormal Set And Sequences. Bessel's Inequality, Series Related To Sequences And Sets. Total Orthonormal Sequences And Sets. Parseval's Identity. Separable Hilbert Space Representation Of Functionals On Hilbert Spaces.
16 Jan ,2022	Sunday
3rd week 17 Jan – 22 Jan	Riesz Representation Theorem For Bounded Linear Functionals On A Hilbert Space.

	Sesquilinear Form. Riesz Representation Theorem For Bounded Sesquilinear Forms On A Hilbert Space. Hilbert Adjoint Operator And Its Theorems. Existence And Uniqueness Of Hilbert Adjoint Operator. Properties Of Hilbert Adjoint Operators.
23 Jan ,2022	Sunday
4th Week 24 Jan – 29 Jan	Self Adjoint Operator And Its Theorems. Unitary Operator, Normal Operator And Theorems. Positive And Projection Operator.
26 Jan, 2022	Republic Day
30 Jan ,2022	Sunday
Feb, 2021 1st week 1 Feb-4 Feb	Sessional Test
5 Feb, 2022	Vasant Panchmi
6 Feb ,2022	Sunday
2nd week 7 Feb- 12 Feb	Sessional Test
13 Feb ,2022	Sunday
3rd week 14 Feb- 19 Feb	Revision of Syllabus

KVA DAV College for Women, Karnal

Lesson plan for the odd semester (October, 2021 to February, 2022)

Name of the Teacher – Ms. Monila Bansal

Subject- Mathematics

Paper- Analytic Mechanics and Calculus of Variation(MM-502)

Class- M.sc.(Mathematics) Sem III

October, 2021 2 nd Week 11 Oct-16 Oct	An introduction to functional Some basic theorem of calculus of variation Fundamental lemma of calculus of variation Euler,s theorem,Examples related to euler’s theorem Shortest distance, minimum surface of revolution
15 Oct, 2021 17 Oct, 2021	(Dussehra) Sunday
3 th Week 18 Oct-23 Oct	Brachistochrone problem, Euler’s equation for one dependent function of one and several independent theorem Functional depending on ‘n’ dependent functions, Example based on functional depending on ‘n’ dependent functions
20 Oct, 2021 24 Oct, 2021	Maharishi Valmiki Jayanti Sunday
4 th Week 25 Oct-30 Oct	Functional depending on higher order derivative Examples related to higher order derivative variational derivative Invariance of euler’s equation and related examples
31 Oct, 2021	Sunday
November, 2021 1 st Week 1 Nov-7 Nov	(Haryana Day) Diwali Holidays
2 nd Week 8 Nov-13 Nov	Natural boundary conditions isoperimetric problem geodesic
14 Nov, 2021	Sunday

3 rd Week 15 Nov-20 Nov	Transversality condition Conditional extremum under geometric constraints and under integral constraints Variable end points
21 Nov, 2021	Sunday
4 th Week 22 Nov-27	Test Free and constrained systems Constraints and their classification
28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	Holonomic and non holonomic systems Scleronomic and rheonomic systems Generalized coordinates Generalized potential Possible and virtual displacement Ideal constraints
05 Dec, 2021	Sunday
2 nd Week 06 Dec -11 Dec	General equation of dynamics Reaction Forces Lagrange's equation of first kind Principle of virtual displacements, D'Alembert principle Holonomic system independent coordinate
12 Dec,2021	Sunday
3 rd week 13 Dec -18 Dec	Generalized forces Lagrange's equations of second kind Uniqueness of solution Theorem on variation of total energy Gyroscopic and dissipative forces
19 Dec,2021	Sunday
4 th Week 20 Dec-24 Dec	Lagrange's equation for potential forces equation for conservative fields Hamilton's variables Don kin's theorem,

	Hamilton canonical equation
25 Dec,2021	Christmas
26 Dec,2021	Sunday
5 th Week 27 Dec -01 Jan	Routh's equation Cyclic coordinates Poisson's bracket ,poisson's identity
2 Jan ,2022	Sunday
Jan ,2022 1 st week 3 Jan – 8 Jan	Jacobi poisson theorem Hamilton's principle Second form of hamilton's principle Poin care carton integral invariant
9 Jan ,2022	Sunday(Sh. Guru Gobind Singh's Birthday)
2 nd week 10 Jan – 15 Jan	Whittaker's equation Jacobi equation Principle of least action Canonical transformation Free canonical transformation Hamilton Jacobi equation
16 Jan ,2022	Sunday
3 rd week 17 Jan – 22 Jan	Jacobi theorem Method of separation of variables for solving Hamilton –jacobi equation Testing the canonical character of a transformation
23 Jan ,2022	Sunday
4 th Week 24 Jan – 29 Jan	Lagrange's bracket Condition of canonical character of a transformation Simplicial nature of a Jacobi matrix of a canonoical transformation Invariance of lagrange's brackets and Poisson brackets under canonical transformation Revision of syllabus
26 Jan, 2022	Republic Day
30 Jan ,2022	Sunday

Feb, 2021 1 st week 1 Feb-4 Feb	Sessional test
5 Feb, 2022 6 Feb ,2022	Vasant Panchmi Sunday
2 nd week 7 Feb- 12 Feb	Sessional test
13 Feb ,2022	Sunday
3 rd week 14 Feb- 19 Feb	Revision of the syllabus

KVA DAV College for Women, Karnal

Lesson plan for the odd semester (October, 2021 to February, 2022)

Name of the Teacher – Ms. SAKSHI

Subject- Mathematics

Paper- Elasticity(MM-503)

Class- M.Sc.(III semester)

October, 2021 2 nd Week 11 Oct-16 Oct	Introduction of Tensor Algebra Tensor Algebra: Coordinate transformation.
15 Oct, 2021 17 Oct, 2021	(Dussehra) Sunday
3 th Week 18 Oct-23 Oct	Tensor of different orders.
20 Oct, 2021 24 Oct, 2021	Maharishi Valmiki Jayanti Sunday
4 th Week 25 Oct-30 Oct	Relation between tensors of different orders. Symmetric and skew symmetric tensor.
31 Oct, 2021	Sunday
November, 2021 1 st Week 1 Nov-7 Nov	(Haryana Day) Diwali Holidays
2 nd Week 8 Nov-13 Nov	Problem discussion Tensor Invariants. Deviatoric tensors, Eigen values of a tensor.
14 Nov, 2021	Sunday

3 rd Week 15 Nov-20 Nov	Eigen vectors of a tensor. Numericals related to the Eigen values and Eigen functions of a tensor. Tensor Analysis: Scaler, Vector, Tensor functions.
19 Nov,2021 21 Nov, 2021	Guru Nanak jayanti Sunday
4 th Week 22 Nov-27	Comma notation, Gradient. Divergence and curl of a Vector/tensor field. Problem discussion.
28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	Analysis of Strain: Affine transformation. Infinitesimal affine transformation. Geometrical interpretation of the components of strain.
05 Dec, 2021	Sunday
2 nd Week 06 Dec -11 Dec	Strain quadric of Cauchy. Principal strain and invariance. General infinitesimal deformation.
12 Dec,2021	Sunday
3 rd week 13 Dec -18 Dec	Saint-Venant's equations of compatibility. Finite deformations.
19 Dec,2021	Sunday
4 th Week 20 Dec-24 Dec	Analysis of Stress: Stress Vector, stress tensor. Equations of Equilibrium. Transformation of coordinates.

	stress quadric of Cauchy.
25 Dec,2021 26 Dec,2021	Christmas Sunday
5th Week 27 Dec -01 Jan	Principal stress and invariants. Maximal normal and shear stresses.
2 Jan ,2022	Sunday
Jan ,2022 1st week 3 Jan – 8 Jan	Mohr's Circles. Examples of stresses.
9 Jan ,2022	Sunday(Sh. Guru Gobind Singh's Birthday)
2nd week 10 Jan – 15 Jan	Equations of Elasticity: Generalised Hooke's law. Anisotropic Symmetries. Homogeneous isotropic medium.
16 Jan ,2022	Sunday
3rd week 17 Jan – 22 Jan	Problem discussion Elasticity moduli for isotropic media. Equilibrium and dynamic equations for an isotropic elastic solid.
23 Jan ,2022	Sunday
4th Week 24 Jan – 29 Jan	Strain energy functions and its connection with Hooke's law. Uniqueness of solutions. Beltrami-Michell compatibility equations. Clapeyron's theorem. Saint-Venant's principal
26 Jan, 2022	Republic Day

30 Jan ,2022	Sunday
Feb, 2021 1 st week 1 Feb-4 Feb	Sessional Test
5 Feb, 2022 6 Feb ,2022	Vasant Panchmi Sunday
2 nd week 7 Feb- 12 Feb	Sessional Test
13 Feb ,2022	Sunday
3 rd week 14 Feb- 19 Feb	Revision of Syllabus

KVA DAV College for Women, Karnal

Lesson plan for the odd semester (October, 2021 to February, 2022)

Name of the Teacher – Ms. Monila Bansal

Subject- Mathematics

Paper- Fluid Mechanics-I(MM-504)

Class- M.sc.(Mathematics) Sem III

October, 2021 2 nd Week 11 Oct-16 Oct	An introduction to fluid dynamics Some basic definition of fluid mechanics Velocity at a point of a fluid Lagrangian and Eulerian methods Relationship between lagrangian and eulerian methods
15 Oct, 2021 17 Oct, 2021	(Dussehra) Sunday
3 th Week 18 Oct-23 Oct	Stream lines,path lines and streak lines Vorticity and circulation Vortex lines Material derivative of fluid
20 Oct, 2021 24 Oct, 2021	Maharishi Valmiki Jayanti Sunday
4 th Week 25 Oct-30 Oct	Acceleration of a fluid Significance of equation of continuity, Equation of continuity in vector form Equation of continuity in Cartesian form Equation of continuity by lagrangian method Equivalence relation between lagrangian and eulerian equation of continuity
31 Oct, 2021	Sunday
November, 2021 1 st Week 1 Nov-7 Nov	(Haryana Day) Diwali Holidays
2 nd Week 8 Nov-13 Nov	General analysis of fluid motion Boundary surfaces and boundary surface conditions Properties of fluids-static and dynamic pressure

	Irrotational and rotational motion, velocity potential
14 Nov, 2021	Sunday
3 rd Week 15 Nov-20 Nov	Reynolds transport theorem Euler's equation of motion Conservative forces Lagrange's equation of motion Bernouilli's theorem
19 Nov,2021 21 Nov, 2021	Guru Nanak Jayanti Sunday
4 th Week 22 Nov-27	Application of Bernouilli's equation in one dimensional flow problems Kelvin circulation theorem Kelvin minimum energy theorem Vorticity equation
28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	Energy equation for incompressible flow Kinetic energy of irrotational flow Mean potential over spherical surface Kinetic energy of infinite liquid Uniqueness theorem
05 Dec, 2021	Sunday
2 nd Week 06 Dec -11 Dec	Definition of real fluid and ideal fluid Stress component in a real fluid Relation between rectangular component of stress
12 Dec,2021	Sunday
3 rd week 13 Dec -18 Dec	Connection between stresses and gradients of velocity Navier stoke's equation of motion Steady flow between two parallel plates Plane poiseuille flow Couette flow
19 Dec,2021	Sunday
4 th Week 20 Dec-24 Dec	Reduction of navier stoke equation in flows having axis of symmetry Steady flow in circular pipe Hagen poiseuille flow

25 Dec,2021	Christmas
26 Dec,2021	Sunday
5th Week	Steady flow between two coaxial cylinders
27 Dec -01 Jan	Flow between two concentric rotating cylinders
2 Jan ,2022	Sunday
Jan ,2022	Related examples
1st week	Corollary of rotating cylinde
3 Jan – 8 Jan	Steady flow through tubes of uniform cross section Uniqueness theorem
9 Jan ,2022	Sunday(Sh. Guru Gobind Singh's Birthday)
2nd week	Ellipse cross section
10 Jan – 15 Jan	Equilateral triangle cross section
16 Jan ,2022	Sunday
3rd week	Rectangular cross section under constant pressure
17 Jan – 22 Jan	Example based on coaxial cylinders Example based on stress strain relation
23 Jan ,2022	Sunday
4th Week	Some important examples
24 Jan – 29 Jan	Revision of syllabus
26 Jan, 2022	Republic Day
30 Jan ,2022	Sunday
Feb, 2021	Sessional test
1st week	
1 Feb-4 Feb	
5 Feb, 2022	Vasant Panchmi
6 Feb ,2022	Sunday
2nd week	Sessional test
7 Feb- 12 Feb	
13 Feb ,2022	Sunday
3rd week	Revision of the syllabus
14 Feb- 19 Feb	

KVA DAV College for Women, Karnal

Lesson plan for the odd semester (October, 2021 to February, 2022)

Name of the Teacher – Ms. Monila Bansal

Subject- Mathematics

Paper- Integral Equation(MM-505)

Class- M.sc.(Mathematics) Sem III

October, 2021 2 nd Week 11 Oct-16 Oct	Definition of integral equation and their classifications Eigen values and eigen functions, Special kinds of kernel ,convolution integral The inner or scalar product of two functions
15 Oct, 2021 17 Oct, 2021	(Dussehra) Sunday
3 th Week 18 Oct-23 Oct	Reduction to a system of algebraic equations Examples related to algebraic equation
20 Oct, 2021 24 Oct, 2021	Maharishi Valmiki Jayanti Sunday
4 th Week 25 Oct-30 Oct	Fredholm alternative Fredholm theorem Fredholm alternative theorem
31 Oct, 2021	Sunday
November, 2021 1 st Week 1 Nov-7 Nov	(Haryana Day) Diwali Holidays
2 nd Week 8 Nov-13 Nov	Approximate method Related examples Method of successive approximation
14 Nov, 2021	Sunday
3 rd Week 15 Nov-20 Nov	Iterative scheme for fredholm and volterra integral equation Conditions of uniform convergence and uniqueness of series solution Resolvent kernel and related examples

	Theorem based on resolvent kernel
21 Nov, 2021	Sunday
4 th Week 22 Nov-27	Classical fredholm's theory,the method of solution fredholm equation Fredholm's first theorem Examples of Fredholm's first theorem
28 Nov, 2021	Sunday
Dec, 2021 1 st Week 29 Nov-04 Dec	Fredholm's second theorem Fredholm's third theorem
05 Dec, 2021	Sunday
2 nd Week 06 Dec -11 Dec	Examples related to fredholm's theorem Symmetric kernels Complex Hilbert space Orthonormal system of functions Riesz –Fisher theorem
12 Dec,2021	Sunday
3 rd week 13 Dec -18 Dec	A complete two dimensional orthonormal set over rectangle Fundamental properties of eigenvalues and eigen functions for symmetric kernels
19 Dec,2021	Sunday
4 th Week 20 Dec-24 Dec	expansion in eigen functions and bilinear form Hilbert-schmidt theorem and some immediate consequences
25 Dec,2021 26 Dec,2021	Christmas Sunday
5 th Week 27 Dec -01 Jan	Definite kernels and Mercer's theorem Solution of a symmetric integral equation

2 Jan ,2022	Sunday
Jan ,2022 1 st week 3 Jan – 8 Jan	Approximation of a general l_2 -kernel by a separable kernel The operator method in theory of integral equations Rayleigh-ritz method for finding the first eigen value Related examples
9 Jan ,2022	Sunday (Sh. Guru Gobind Singh's Birthday)
2 nd week 10 Jan – 15 Jan	Abel integral equation
16 Jan ,2022	Sunday
3 rd week 17 Jan – 22 Jan	Inversion formula for singular integral equation Cauchy's principal value for integral solution
23 Jan ,2022	Sunday
4 th Week 24 Jan – 29 Jan	Cauchy type singular integral equation Closed and unclosed contours Riemann Hilbert problem The Hilbert –Kernel solution of the Hilbert type singular integral equation
26 Jan, 2022 30 Jan ,2022	Republic Day Sunday
Feb, 2021 1 st week 1 Feb-4 Feb	Sessional test
5 Feb, 2022 6 Feb ,2022	Vasant Panchmi Sunday
2 nd week 7 Feb- 12 Feb	Sessional test
13 Feb ,2022	Sunday
3 rd week 14 Feb- 19 Feb	Revision of the syllabus

