

**G.C. Dujana, Jhajjar**  
**Lesson Plan**  
**Aug 2022 to December 2022**

<b>Name of the Assistant Professor:</b> Mrs. Anil Kumari <b>Class and Section:</b> B.Sc.-I(Pass Course) Semester-I <b>Paper :</b> Algebra				
	<b>Week 1</b>	<b>Week 2</b>	<b>Week 3</b>	<b>Week 4/Week 5</b>
<b>AUG</b>	Admissions	Admissions	Admissions	Matrices
<b>SEP</b>	Rank of a matrices	Characteristic Equation of a Matrix	Revision and Tests	Application of matrices to a system of linear Equations
<b>OCT</b>	Orthogonal and Unitary Matrices	Bilinear and quadratic forms	Revision and Tests	Relation between the roots and coefficients of an equation
<b>NOV</b>	Transformation of equations	Revision , assignment, test	Solution of cubic and biquadratic equations	Descarte's rule of science
<b>DEC</b>	Revision	Revision and Tests	Semester Exams/Winter Vacations	

**Aug 2022 to December 2022**

<b>Name of the Assistant Professor:</b> Mrs. Anil Kumari <b>Class and Section:</b> B.Sc.-III(Pass Course) Semester-V <b>Paper :</b> Numerical analysis				
	<b>Week 1</b>	<b>Week 2</b>	<b>Week 3</b>	<b>Week 4/Week 5</b>
<b>AUG</b>	Admissions	Admissions	Finite Difference Operators	Interpolation with equal intervals
<b>SEP</b>	Interpolation with unequal intervals	Central Difference Interpolation	Probability Distribution	Poisson's Distribution and Normal Distribution
<b>OCT</b>	Numerical Differentiation	Eigen Value Problems	Revision and test	Numerical Integration
<b>NOV</b>	Numerical Solution of Ordinary Differential Equations by Single step methods	Revision assignment, test	Numerical Solution of Ordinary Differential Equations by Multiple step methods	Numerical Solution of Ordinary Differential Equations by Multiple step methods-II
<b>DEC</b>	Revision	Revision and Tests	Semester Exams/Winter Vacations	

**Aug 2022 to December 2022**

<b>Name of the Assistant Professor:</b> Mrs. Anil Kumari <b>Class and Section:</b> B.Sc.-II(Pass Course) Semester-III <b>Paper :</b> Advanced calculus				
	<b>Week 1</b>	<b>Week 2</b>	<b>Week 3</b>	<b>Week 4/Week 5</b>
<b>AUG</b>	Admissions	Admissions	Continuous Functions	Derivatives and Mean Value Theorems
<b>SEP</b>	Taylor's Theorem and Indeterminate Form	Limit and Continuity of Functions of two variables	Partial Differentiations	Differentiability of function of two variables
<b>OCT</b>	Young's, Schwarz's and Implicit Function Theorem	Maximum and Minimum of a function of two variables	Curves in Space	Serret-Frenets Formula and its examples
<b>NOV</b>	Circle of curvature and spherical curvature.	Revision , assignment, test	Involutes and Evolute	Concept of Surface and Envelopes
<b>DEC</b>	Revision and Tests	Revision and Tests	Semester Exams/Winter Vacations	

# **BRS GOVERNMENT COLLEGE ,DUJANA**

Lesson Plan for the session 2022-23

Department of Mathematics

Paper & Class : **Business Mathematics-I ( B.Com Ist Semester)**

Name of the Assistant Professor: Gautam Ram

<b>Date, Week,Month</b>	<b>Chapter and Topic</b>
22-08-2022 to 27-08-2022	<b>Theory of Sets:</b> Meaning, elements, types, presentation and equality of Sets
29-08-2022 to 03-09-2022	Union.,Intersection, Complement and Difference of Sets, Venn Diagram.
05-09- 2022 to 10-09- 2022	Cartesian Product of two Sets .Applications of Set Theory.
12-09- 2022 to 17-09- 2022	Discussion on problems in unit-1
19-09- 2022 to 24-09- 2022	Definition of a Matrix ; Types of Matrices, Algebra of Matrices;
26-09- 2022 to 01-10- 2022	Properties of determinants; Calculation of values of Determinants upto third order; adjoint of a Matrix, elementary row and column operations;
03-10- 2022 to 08 -10- 2022	Finding inverse matrix through adjoint and elementary row or column operations;
10-10- 2022 to 15-10- 2022	Solution of a system of Linear equations having unique Solution and involving not more than three variables ;Leontief Input Output Model.
17-10- 2022 to 19-10- 2022	-----do-----
20-10- 2022 to 26-10- 2022	DIWALI BREAK
27-10-2022 to 29-10-2022	Discussion on problems in unit-2
31-10-2022 to 05 -11-2022	Permutations and Combinations.
07-11-2022 to 12 -11-2022	-----do-----
14-11-2022 to 19-11-2022	Discussion on problems in unit-3
21-11-2022 to 26-11-2022	Sequence and Series, Indices and Logarithms, A.P, G.P.
28.11-2022 to 03-12-2022	-----do-----
05-12-2022 to 10-12-2022	-----do-----
12-12-2022 to 17-12-2022	Revision

**Signature : ( Gautam Ram)**

**Paper : : Business Mathematics-I ( B.Com Ist Semester)**



# **BRS GOVERNMENT COLLEGE ,DUJANA**

Lesson Plan for the session 2022-23

Department of Mathematics

Paper & Class : **Calculus ( B-Sc- 1st Semester)**

Name of the Assistant Professor: **Gautam Ram**

<b>Date, Week,Month</b>	<b>Chapter and Topic</b>
22-08-2022 to 27-08-2022	Definition of the limit of a function- Basic properties of limits
29-08-2022 to 03-09-2022	Continuous functions and classification of discontinuities. Differentiability
05-09- 2022 to 10-09- 2022	Successive differentiation. Leibnitz theorem. Maclaurin and Taylor series expansions.
12-09- 2022 to 17-09- 2022	Discussion on problems in Section 1.
19-09- 2022 to 24-09- 2022	Asymptotes in Cartesian coordinates, intersection of curve and its asymptotes, asymptotes in polar coordinates
26-09- 2022 to 01-10- 2022	Curvature, radius of curvature for Cartesian curves, parametric curves, polar curves- Newton's method.
03-10- 2022 to 08 -10- 2022	Radius of curvature for pedal curves- Tangential polar equations.Centre of curvature. Circle of curvature.
10-10- 2022 to 15-10- 2022	Chord of curvature, evolutes. Tests for concavity and convexity. Points of inflexion. Multiple points-
17-10- 2022 to 19-10- 2022	Cusps, nodes & conjugate points .Type of Cusps.
20-10- 2022 to 26-10- 2022	DIWALI BREAK
27-10-2022 to 29-10-2022	Discussion on problems in Section 2
31-10-2022 to 05 -11-2022	Tracing of curves in Cartesian, parametric and polar co-ordinates
07-11-2022 to 12 -11-2022	Reduction formulae .Rectification, intrinsic equations of curve.
14-11-2022 to 19-11-2022	Discussion on problems in Section 3
21-11-2022 to 26-11-2022	Quadrature (area)Sectorial area. Area bounded by closed curves.
28.11-2022 to 03-12-2022	Volumes and surfaces of solids of revolution- Theorems of Pappu's and Guilden.
05-12-2022 to 10-12-2022	Discussion on problems in Section 4
12-12-2022 to 17-12-2022	Revision

**Signature : ( Gautam Ram)**

**Paper : Calculus( B.Sc- Ist Sem )**

# **BRS GOVERNMENT COLLEGE ,DUJANA**

Lesson Plan for the session 2022-23

Department of Mathematics

Paper & Class: Partial Differential Equations ( **B.Sc- III rd Semester**)

Name of the Assistant Professor: Gautam Ram

<b>Date, Week,Month</b>	<b>Chapter and Topic</b>
22-08-2022 to 27-08-2022	Partial differential equations: Formation, order and degree, Linear and Non-Linear Partial differential equations of the first order.,
29-08-2022 to 03-09-2022	Complete solution, singular solution, General solution
05-09- 2022 to 10-09- 2022	Solution of Lagrange's linear equations, Charpit's general method of solution.
12-09- 2022 to 17-09- 202	Compatible systems of first order equations, Jacobi's method.
19-09- 2022 to 24-09- 2022	Discussion on problems in Section 1
26-09- 2022 to 01-10- 2022	Linear partial differential equations of second and higher orders, Linear and non-linear homogenous and non-homogenous equations with constant co-efficients,
03-10- 2022 to 08 -10- 2022	Partial differential equation with variable co-efficients reducible to equations with constant coefficients, their complimentary functions and particular Integrals,
10-10- 2022 to 15-10- 2022	Equations reducible to linear equations with constant co-efficients.
17-10- 2022 to 19-10- 2022	Discussion on problems in Section 2
20-10- 2022 to 26-10- 2022	DIWALI BREAK
27-10-2022 to 29-10-2022	Classification of linear partial differential equations of second order, Hyperbolic, parabolic and elliptic types, ,
31-10-2022 to 05 -11-2022	Reduction of second order linear partial differential equations to Canonical (Normal) forms and their solutions
07-11-2022 to 12 -11-2022	Solution of linear hyperbolic equations, Monge's method for partial differential equations of second order.
14-11-2022 to 19-11-2022	Discussion on problems in Section 3
21-11-2022 to 26-11-2022	Cauchy's problem for second order partial differential equations, Characteristic equations and characteristic curves of second order partial differential equation, ,
28.11-2022 to 03-12-2022	Method of separation of variables: Solution of Laplace's equation
05-12-2022 to 10-12-2022	Wave equation (one and two dimensions), Diffusion (Heat) equation (one and two dimension) in Cartesian Co-ordinate system
12-12-2022 to 17-12-2022	.Discussion on problems in Section

**Signature : ( Gautam Ram)**

**Paper : Partial Differential Equations ( B-Sc- III rd Semester)**



# **BRS GOVERNMENT COLLEGE ,DUJANA**

Lesson Plan for the session 2022-23

Department of Mathematics

Paper & Class : **Groups and Rings ( B-Sc- Vth Semester)**

Name of the Assistant Professor: Gautam Ram

<b>Date, Week,Month</b>	<b>Chapter and Topic</b>
22-08-2022 to 27-08-2022	Definition of a group with example and simple properties of groups, Subgroups and Subgroup criteria
29-08-2022 to 03-09-2022	Generation of groups, cyclic groups, Cosets, Left and right cosets, Index of a sub-group
05-09- 2022 to 10-09- 2022	Coset decomposition, Lagrange's theorem and its consequences, Normal subgroups, Quotient groups
12-09- 2022 to 17-09- 2022	-----DO-----
19-09- 2022 to 24-09- 2022	Discussion on problems in Section 1
26-09- 2022 to 01-10- 2022	Homomorphisms, isomorphisms, automorphisms and inner automorphisms of a group.
03-10- 2022 to 08 -10- 2022	Automorphisms of cyclic groups,Permutations groups. Even and odd permutations
10-10- 2022 to 15-10- 2022	Alternating groups, Cayley's theorem, Center of a group and derived group of a group
17-10- 2022 to 19-10- 2022	Discussion on problems in Section 2
20-10- 2022 to 26-10- 2022	DIWALI BREAK
27-10-2022 to 29-10-2022	Introduction to rings, subrings, integral domains and fields, Characteristics of a ring.
31-10-2022 to 05 -11-2022	Ring homomorphisms, ideals (prime, maximal and simple) and Quotient rings, Field of quotients of an integral domain.
07-11-2022 to 12 -11-2022	Discussion on problems in Section 3
14-11-2022 to 19-11-2022	Euclidean rings, Polynomial rings,Polynomials over the rational field
21-11-2022 to 26-11-2022	The Eisenstein's criterion, Polynomial rings over commutative rings.
28.11-2022 to 03-12-2022	Unique factorization domain, R unique factorization domain implies so is $R[X_1, X_2, \dots, X_n]$
05-12-2022 to 10-12-2022	Discussion on problems in Section 4
12-12-2022 to 17-12-2022	Revision

**Signature : ( Gautam Ram)**

**Paper : Groups and Rings ( B.Sc- Vth Sem )**



# Lesson Plan (2022-23)

Name of the Assistant/ Associate Professor:

Subject:

Class:

WEEK	TOPIC
22-26 Aug-2022	Jacobians, Functional dependence
27-AUG---2Sept-2022	Beta and Gamma functions
3-9Sept-2022	Double integral
10-17-Sept-2022	Triple integral, Application of double and triple integrals for finding area and volume of surfaces.
18-24sept-2022	Dirichlet's integral, Change of order of integration
25sept-01Oct-2022	Fourier Series
02-9Oct-2022	Fourier Series
10-16oct-2022	Fourier Series
17-24Oct2022	Stereographic projection of complex numbers, Limit, Continuity of complex functions.
27Oct-1Nov2022	Analytic functions, C-R Equation, Harmonic functions
2-9Nov2022	Construction of analytic functions and Test

10-17nov2022	Elementary Functions and Möbius transformations
18-24Nov2022	———— Do —————
25Nov-1DEC2022	Critical Mappings
2-9DEC2022	Revision of important topics
10-16Dec2022	Test and Assignments

Class:

B.Sc. II<sup>nd</sup> year III<sup>rd</sup> Sem.

Name of the Assistant/ Associate Professor:

Subject:

Maths (Statics)

WEEK	TOPIC
22-26Aug-2022	Parallelogram law of forces, Magnitude and direction of resultant
27-AUG---2Sept-2022	Components of a given force in two directions. Converse of triangle law of forces. $\lambda$ - $\mu$ theorem
3-9Sept-2022	Polygon law of forces, Condition of Equilibrium of concurrent forces.
10-17-Sept- 2022	Parallel forces, like and unlike forces, Analogue of Lami's theorem. Generalized theorem of resolved parts for parallel forces.
18-24sept-2022	Moment of a force about a point. Varignon's theorem
25sept-01Oct-2022	Centre of a number of parallel forces, Moment of a force about a line. Moment of a couple. Resultant of coplanar couples.
02-9Oct-2022	Equilibrium of three forces acting at a point.
10-16oct-2022	Condition of Equilibrium of any no. of coplanar forces.
17-24Oct2022	Friction. Problems on Equilibrium of Rods and ladders.
27Oct-1Nov2022	Centre of Gravity and related problems.
2-9Nov2022	Virtual work

10-17nov2022	Forces in three dimensions.
18-24Nov2022	Wrenches
25Nov-1DEC2022	Null lines and null planes
2-9DEC2022	Stable unstable and Neutral Equilibrium
10-16Dec2022	Test and Assignments

**Lesson Plan (2022-23)**

Class: **B.Sc. 1<sup>st</sup> Semester** Name of the Assistant/ Associate Professor: \_\_\_\_\_ Subject: **Maths (Solid Geometry)**

WEEK	TOPIC
22-26Aug-2022	General Equation of second degree.
27-AUG---2Sept-2022	Tracing of Conics System of Conics
3-9Sept-2022	Confocal Conics, Polar Eq. of a Conics, Tangent and normal to the Conic.
10-17-Sept- 2022	Sphere: plane Section of a sphere, Intersection of two spheres
18-24sept-2022	Coxal System of Spheres. Introduction to Cones.
25sept-01Oct-2022	Right circular Cones, Enveloping cones
02-9Oct-2022	Reciprocal Cones. Introduction to cylinders
10-16oct-2022	Right circular cylinder
17-24Oct2022	Enveloping cylinders.
27Oct-1Nov2022	Introduction to central conicoids. Eq. of tangent plane
2-9Nov2022	Director sphere, Normal to the conicoids.

10-17nov2022	Enveloping cone of a conicoid and Enveloping cylinders of a conicoid.
18-24Nov2022	Introduction to Paraboloids, Circular and Plane sections of conicoids
25Nov-1DEC2022	Generating lines, Confocal conicoids
2-9DEC2022	Reduction of second degree equations
10-16Dec2022	Test, Assignments