

# LESSON PLAN ( w.e.f. August 22, 2022 to Jan- 2023)

Mrs. Ravinder

Assistant Professor of Maths

Class : B.A 1<sup>st</sup> year (1<sup>st</sup> semester)

Subject: Mathematics

## Paper : Solid Geometry

	Learning Outcomes
<p><b>AUGUST AND SEPTEMBER 2022</b></p> <p>Topics- Equation of plane in terms of its intercepts on the axis, Equations of the plane through the given points, Length of the perpendicular from a given point to a given plane, Bisectors of angles between two planes, Combined equation of two planes, Orthogonal projection on a plane</p>	<p>Students will know about Planes, equation of planes Through given points, combined equation of two planes and orthogonal projection on a Plane.</p>
<p><b>OCTOBER 2022</b></p> <p>Topics The condition that two given lines are coplanar; Number of arbitrary constants in the equations of a straight line; Sets of conditions which determine a line; The shortest distance between two lines; The length and equations of the line of shortest distance between two straight lines; Length of the perpendicular from a given point to a given line; Intersection of three planes; Definition and equation of the sphere; Equation of the sphere through four given points; Plane sections of a sphere; Intersection of two spheres; Equation of a circle; Sphere through a given circle; Intersection of a sphere and a line; Assignment 1 and revision</p>	<p>Students will know about Equations of a straight line, shortest distance between two lines. Equation of a sphere, plane section of a sphere and also the equations of a Circle.</p>
<p><b>NOVEMBER 2022</b></p> <p>Topics- Tangent plane; Plane of contact; Polar plane; Pole of a plane; Conjugate points; Conjugate planes; Angle of intersection of two spheres; Conditions for two spheres to be orthogonal; Radical plane; Coaxial system of spheres; Simplified form of the equation of two spheres. Cones Definitions of a cone; vertex; guiding curve; generators; Equation of the cone with a given vertex and guiding curve; Enveloping cone of a sphere; Equations of cones with vertex at origin are homogenous; Condition that the general equation of the second degree should represent a cone; Assignment 2 and revision</p>	<p>Students will know about Tangent plane, Plane of contact of two spheres. Equation of the cone with a given vertex and guiding curve; Enveloping cone of a sphere.</p>
<p><b>DECEMBER- 2022</b></p> <p>Topics- Intersection of two cones with a common vertex; Right circular cone; Equation of the right circular cone with a given vertex; axis and semi-vertical angle. Conicoid, Plane section of conicoid Revision</p>	<p>Students will know about Intersection of two cones with a common vertex; Right circular cone; Equation of the right circular cone with a given vertex; axis and semi-vertical angle.</p>
<p><b>January 2023</b></p> <p>Revision and Test</p>	

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19/11/22

**LESSON PLAN**  
**August 2022 to January 2023**

Name of the Assistant/Associate Professor: Mrs. Ravinder	Learning Outcomes
<b>Class and Semester: B.A. 1st year (1st Semester)</b>	
<b>Subject: Mathematics</b>	
<b>Paper : Calculus.</b>	
<b>AUGUST AND SEPTEMBER 2022</b> <b>Topics-</b> Limit of functions, Types of continuity and differentiability of Functions. Successive differentiation of functions in implicit, explicit and parametric form. Leibnitz theorem. Some general theorem on differentiable functions and expansions. Taylor's theorem and infinite series.	About limit of functions, Types of continuity and differentiability.
<b>OCTOBER 2022</b> <b>Topics –</b> Asymptotes parallel to coordinate axis and oblique asymptotes in Cartesian and polar form Singular points Curvature (radius of curvature for Cartesian curve. parametric curves, polar curves, pedal curves)	
<b>NOVEMBER 2022</b> <b>Topics-</b> Reduction Formulae, Rectification, Length of curves in Cartesian, parametric and polar curves Assignment and Test 1	About reduction Formulae, Rectification
<b>DECEMBER- 2022</b> <b>Topics-</b> Quadrature (area) Sectorial area. Area bounded by closed curves. Revision of syllabus.	
<b>January -2022</b> <b>Revision and Tests</b>	

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## LESSON PLAN ( w.e.f. August 22, 2022 to Jan- 2023)

Mrs. Ravinder

Assistant Professor of Maths

Class : B.A 2nd<sup>l</sup> year (3rd semester)

Subject: Mathematics

Paper : Advanced Calculus

	Learning Outcomes
<b>AUGUST AND SEPTEMBER 2022</b> Topics- Continuity, Sequential Continuity, Properties of continuous Functions. Uniform Continuity, Chain rule of Differentiability. Rolle's Theorem, Lagranges mean Value Theorem, Taloyr's theorem.	Students will know about Continuity, Sequential Continuity. Rolle's Theorem, Lagranges mean Value Theorem, Taloyr's theorem.
<b>OCTOBER 2022</b> Topics Limit and Continuity of real valued functions of two variables. Partial Differentiation, Total differentials; Composite functions and implicit functions. Change of variables , Homogeneous functions. Taylos's functions of two variables. Assignment 1 and Test	Students will know about Limit and Continuity of real valued functions of two variables. Partial Differentiation
<b>NOVEMBER 2022</b> Topics- Differentiability of real valued functions of two variables, Schwartz and Young's theorem. Implicit functuin theorem. Maxima, minima and saddle poimts of two variables. Lagrange, s method of multipliers.	Students will know about Differentiability of real valued functions of two variables, Schwartz and Young's theorem. Implicit functuin theorem.
<b>DECEMBER- 2022</b> Topics- Curves: Tangents, Principal Normals, Binormals, Serret-Frenet formula Surfaces : Tangent Planes, one parameter family of surfaces and envelopes. Assignment 2 and test	Students will know about Curves: Tangents, Principal Normals, Binormals, Serret-Frenet formula Surfaces : Tangent Planes, one parameter family of surfaces and envelopes.
<b>January 2023</b>  Revision and Test	

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**LESSON PLAN**  
**AUGUST 2022 TO JANUARY 2023**

<b>Name of the Assistant/Associate Professor: Mrs. Ravinder</b>	Learning Outcomes
<b>Class and Semester: B.A. IIIrd year (5th Semester)</b>	
<b>Subject: Mathematics</b>	
<b>Paper: REAL ANALYSIS</b>	
<b>AUGUST AND SEPTEMBER 2022</b> Riemaan Integral and its properties , continuity of functions and riemaan integrability Revision and test of chapter	About Riemaan Integral and properties
<b>OCTOBER 2022</b> Topics -Improper integrals and their convergence, Comparison tests, Abel's and Dirichlet's tests, Frullani's integral, Integral as a function of a parameter	Improper integrals Integral as a function of a parameter
<b>NOVEMBER 2022:</b> Topics: Definition and examples of metric spaces, neighborhoods, limit points, interior points, open and closed sets, closure and interior, boundary points, subspace of a metric space, equivalent metrics, Cauchy sequences, completeness, Cantor's intersection theorem, Baire's category theorem, contraction Principle.	metric spaces neighborhooc limit points, interior point: open and closed sets.
<b>DECEMBER 2022</b> Topics : Continuous <i>functions</i> , uniform continuity, compactness for metric spaces, sequential compactness, Bolzano-Weierstrass property, total boundedness, finite intersection property, continuity in relation with compactness, connectedness, components, continuity in relation with connectedness.	Continuous <i>functions</i> , uniform continuity
January 2023 Revision and Test	

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**LESSON PLAN**  
**AUGUST 2022 to JANUARY 2023**

<b>Name of the Assistant/Associate Professor: Mrs. Ravinder</b>	Learning Outcomes
<b>Class and Semester: B.Com (1<sup>st</sup> Semester)</b>	
<b>Subject: Mathematics</b>	
<b>Paper: Business Mathematics.</b>	
<b>AUGUST and SEPTEMBER 2022</b> <b>Topics:-</b> Logarithms, Anti-logarithms and related sums. Compound Interest and Annuities: different types of interest rates, concept of present value and amount of a sum; types of annuities; present value and amount of an annuity (including the case of continuous compounding); valuation of simple loans and debentures; problems relating to sinking funds.	About Logarithms. Anti- logarithms Compound Interest and Annuities:
<b>OCTOBER 2022</b> <b>Topics:-</b> Sequences and Series: Arithmetic & Geometric Progressions.  <b>First Assignment on the topic of Arithmetic &amp; Geometric Progressions.</b>	About Arithmetic & Geometric Progressions.
<b>NOVEMBER 2022</b> <b>Topics -</b> Differentiation: Idea of simple derivative of different functions (excluding Trigonometrical functions); Rules of differentiation (simple standard forms). Maxima and Minima of functions of one variable (including 2nd or 3rd order derivatives) relating to cost, revenue and profit. <b>Test on Maxima and Minima of functions of one variable.</b>	About Differentiation Idea of simple derivative of different functions.
<b>DECEMBER 2022</b> <b>Topics- Matrices and Determinants:</b> concept of matrix, types, and algebra of matrices; properties of determinants; calculation of values of determinants up to third order, adjoint of a matrix, elementary row or column operations; Finding inverse of a matrix through adjoint and elementary row or column operations; solution of a system of linear equations having unique solution and involving not more than three variables. <b>Second Assignment on the topic of solution of a system of linear equations</b>	About Matrices and Determinants
<b>January 2023</b> <b>Revision and tests</b>	

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