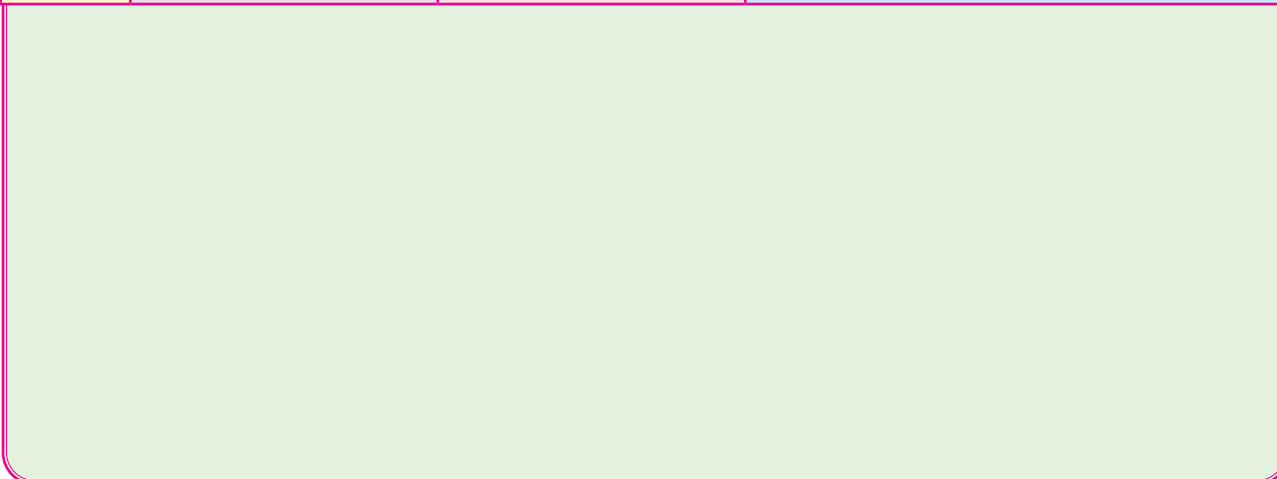


XII Mathematics & Statistics (Arts & Science)

Mathematics and Statistics Std. XII Part - I Competency Statement

Sr.No.	Area	Topic	Competency Statement
1.	Mathematical Logic	Mathematical Logic	The student will be able to <ul style="list-style-type: none"> • Identify statement in logic and truth value of it. • Combine two or more statements • Construct the truth table and examine logical equivalence of statement patterns • Find dual and negation of statement pattern • Study the applications of logic to switching circuits.
2.	Matrices	Matrices	<ul style="list-style-type: none"> • Identify orders and types of matrices • Perform basic algebraic operations on matrices. • Find the inverse of a matrix using elementary transformation and adjoint method • Solve the system of linear equations using matrices.
3.	Trigonometric Equations	Trigonometric Equations Solution of a triangle Invers trigonometric function	<ul style="list-style-type: none"> • Understand and write trigonometric equation • Find the principal and general solution of a trigonometric equation. • Solve triangle by using sine rule, cosine rule and projection rule and find area of a triangle. • Understand inverse trigonometric functions with domain and range.
4.	Pair of straight lines	Pair of straight lines	<ul style="list-style-type: none"> • Write and interpret the combined equation of two straight lines in plane. • Find the point of intersection of two lines and calculate the acute angle between them • Study the general second degree equation in x and y with reference to homogeneous part of it

5.	Vectors	Vectors	<ul style="list-style-type: none"> • Understand scalars and vectors and algebra of vectors. • Write vectors of 2 or 3 dimensions, understand the scalar and vector products • Study applications of vectors to area of triangle, work done by a force, moment of a force. • Interpret scalar triple product and its applications.
6.	Line and Plane	Line and Plane	<ul style="list-style-type: none"> • Find different forms of equation of line • Find angle between two intersecting planes • Find the angle between a line and a plane • Find condition for perpendicularity and parallelness of planes • Calculate distance of a point from a plane • Find equation of a plane in different forms • Find angle between two intersecting planes • Find the angle between a line and a plane
7.	Linear programming Problem	Linear programming Problem	<ul style="list-style-type: none"> • Understand linear equations in one and two variables. • Find graphical solution of linear inequation. • Understand meaning and formulation of L.P.P. • Find solution of L.P.P. by graphical methods.



Mathematics and Statistics XII (Part II)
Arts and Science

Sr. No	Area / Topic	Sub Unit	Competency Statement
1.	Differentiation	Differentiation	<p>The students will be able to</p> <ul style="list-style-type: none"> • state and use standard formulas of derivative of standard functions • use chain rule of derivatives • find derivatives of the logarithm, implicit, inverse and parametric functions • find second and higher order derivatives.
2.	Applications of Derivatives	Applications of Derivatives	<ul style="list-style-type: none"> • find equations of tangents and normal to a curve • determine nature of the function-increasing or decreasing • find approximate values of the function • examine function for maximum and minimum values • verify mean value theorems
3.	Indefinite Integration	Indefinite Integration	<ul style="list-style-type: none"> • understand the relation between derivative and integral • use the method of substitution • solve integrals with the help of integration by parts • solve the integrals by the method of partial fractions
4.	Definite Integration	Definite Integration	<ul style="list-style-type: none"> • understand integral as a limit of sum • the properties of definite integral • state the properties of definite integral and use them to solve problems

5.	Application of Definite Integration	Application of Definite Integration	<ul style="list-style-type: none"> find the area under the curve, bounded by the curves using definite integrals.
6.	Differential Equation	Differential Equation	<ul style="list-style-type: none"> form a differential equation and find its order and degree solve the first order and first degree differential equation by various methods apply the differential equations to study the population, growth and decay in amount of substance and physics.
7.	Probability Distribution	Probability Distribution	<ul style="list-style-type: none"> understand the random variable and its types. find probability mass function and its probability distribution. find the expected value, variance and the standard deviation find the probability density function of continuous random variable find distribution function of c.r.v.
8	Binomial Distribution	Binomial Distribution	<ul style="list-style-type: none"> understand random experiment with two or more outcomes. determine probability distribution of random experiment with parameters n and p. find mean, variance, expected value and standard deviation for the binomial distribution.