INDIAN SCHOOL MUSCAT
SENIOR SECTION
DEPARTMENT OF MATHEMATICS
CLASS XII
YEAR PLAN (2022-2023)

MATHEMATICS (Code: 041)

UNIT No.	Unit	Marks
1.	• Relations and Functions and Inverse Trigonometric Functions	8
2.	• Calculus Continuity and differentiability, AOD, Integrals and its applications, Differential equations	35
3.	• Algebra Matrices and Determinants	10
4.	• Vector Algebra and 3-Dimentional Geometry	14
5	• Probability	8
6	• LPP	5
	Total	80

MONTH	UNITS	Subject Enrichment Activities
March 2022	❖ RELATIONS AND FUNCTIONS • Types of Relations • Types of Functions • Revision and a diagnostic test. ❖ INVERSE TRIGONOMETRIC FUNCTIONS • Introduction • Basic Concepts and graphs • Revision and a diagnostic test.	1.a) To demonstrate a function which is not one-one but is onto. b) To demonstrate a function which is one-one but not onto. 2. To draw the graph of $\sin^{-1} x$ and $\cos^{-1} x$ using the graph of sin x and demonstrate the concept of mirror reflection (about the line $y = x$).
April 2022	❖ CONTINUITY AND DIFFERENTIABILITY • Connecting with previous knowledge • Introduction • Continuity • Differentiability (i) Derivatives of Implicit Functions (ii) Derivatives of Inverse Trigonometric Functions • Exponential and Logarithmic Functions • Derivatives of Functions in Parametric Form • Second Order Derivative • Revision and a diagnostic test..	

May 2022	❖ **APPLICATION OF DERIVATIVES** • Introduction • Rate of change • Increasing and Decreasing functions • Maxima and Minima • **Revision and a diagnostic test.** ❖ **MATRICES** • Connecting with previous knowledge • Introduction • Types of Matrices • Operations on Matrices • Transpose of a Matrix • Symmetric and Skew Symmetric Matrices • **Revision and a diagnostic test**	3. To understand the concepts of decreasing and increasing functions. 4. To understand the concepts of local maxima, local minima and point of inflection.
June 2022	❖ **DETERMINANTS** • Introduction • Area of a Triangle • Minors and Cofactors • Adjoint and Inverse of a Matrix • Applications of Determinants and Matrices	
	SUMMER BREAK	
August 2022	❖ **INTEGRALS** • Introduction • Integration as an Inverse Process of Differentiation • Methods of Integration • Integrals of some Particular Functions • Integrals by Partial Fractions • Integration by Parts • Definite Integral • Fundamental Theorem of Calculus • Evaluation of Definite Integrals by Substitution • Some Properties of Definite Integrals	5. To evaluate the definite integral $\int_a^b \sqrt{(1-x^2)}dx$ as the limit of a sum and verify it by actual integration.
September 2022	❖ **APPLICATION OF INTEGRALS** • Connecting with previous knowledge • Area under Simple Curves ❖ **HALF YEARLY EXAMINATION**	
October 2022	• **VECTOR ALGEBRA** • Introduction • Some Basic Concepts • Types of Vectors, Addition of Vectors • Multiplication of a Vector by a Scalar • Product of Two Vectors • **THREE DIMENSIONAL GEOMETRY** • Introduction • Direction Cosines and Direction Ratios of a Line • Equation of a Line in Space • Shortest Distance between Two Lines • **Revision and a diagnostic test.**	6. To verify geometrically that $\vec{c} \times (\vec{a} + \vec{b}) = \vec{c} \times \vec{a} + \vec{c} \times \vec{b}$ 7. To measure the shortest distance between two skew lines and verify it analytically.

	❖ **PROBABILITY** • Introduction • Conditional Probability • Multiplication Theorem on Probability • Independent Events • Bayes' Theorem • Random Variables, its Probability Distribution and mean.	8. To explain the computation of conditional probability of a given event A, when event B has already occurred, through an example of throwing a pair of dice.
November 2022	❖ **DIFFERENTIAL EQUATIONS** • Introduction • Basic Concepts • General and Particular Solutions of a D.E Methods of solving First order, First Degree D.E ❖ **LINEAR PROGRAMMING** • Connecting with previous knowledge • Introduction • Graphical method of solving LPP • **Revision and a diagnostic test.** **FINAL EXAMINATION**	
December 2022	REVISION **WINTER BREAK**	
January 2023	**Preboard -1 EXAMINATION**	
February 2023	❖ **PRE-BOARD-2 EXAMINATION**	
March 2023	❖ **BOARD EXAMINATIONS**	

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