SS Subject Curriculum & Assessment

Subject: Mathematics

Curriculum Aims

- To develop students' ability to think critically and creatively, to conceptualise, inquire and reason mathematically, and to use mathematics to formulate and solve problems in daily life as well as in mathematical contexts and other disciplines;
- To develop students' ability to communicate with others and express their views clearly and logically in mathematical language;
- To develop students' ability to manipulate numbers, symbols and other mathematical objects;
- To develop students' number sense, symbols sense, spatial sense, measurement sense and the concept of structure and patterns;
- To develop students' positive attitude towards mathematics learning and an appreciation of the aesthetic nature and cultural aspects of mathematics.

Curriculum Framework and Progression of Study

	Compulsory Part	Elective Part	
		Module 1	Module 2
SS1	1. Quadratic equations in one unknown 2. Functions and graphs 3. Equations of Straight Lines 4. More about polynomials 5. Exponential and Logarithmic functions 6. More about equations 7. Variations 8. More about trigonometry	1. Binomial expansion 2. Exponential and logarithmic functions 3. Limits and Derivatives 4. Differentiation 5. Applications of differentiation 6. Indefinite integrals and its applications 7. Definite integrals and its applications	1. Pre-requisite knowledge, Odd and Even function 2. Mathematical induction 3. Binomial Theorem 4. More about trigonometric functions 5. Limits and the number e 6. Differentiation 7. Application of differentiation
SS2	9. Basic properties of circles 10. Tangents to circles 11. Inequalities and linear programming 12. Applications of trigonometry in 2D and 3D problems 13. Equations of circles 14. Locus 15. Measures of dispersion 16. Permutation and combination 17. More about probability	8. Estimate definite integrals by Trapezoidal Rule 9. Review on basic statistic and probability 10. Conditional probability and Bayes' theorem 11. Discrete probability distributions 12. Some special discrete probability distributions	8. Indefinite integration and its applications 9. Definite integration 10. Application of definite integration 11. Matrices and Determinants 12. Systems of Linear Equations

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	Compulsory Part	Elective Part	
SS3	18. Arithmetic and geometric sequences and their summations 19. More about graphs and functions 20. Uses and abuses of statistics 21. Further applications 22. Inquiry and investigation	Module 1 13. Normal distribution and its applications 14. Point and interval estimation 15. Inquiry and investigation	Module 2 13. Introduction to Vectors 14. Scalar Products and Vector Products 15. Applications of vectors

Assessment

	Components	Weighting	Duration
Public Examination	Compulsory Part: Paper 1 Conventional questions Paper 2 Multiple-choice questions	 65% 35%	 2.25 hours 1.25 hours
	Extended Part: Module 1 (Calculus and Statistics) Conventional questions	100%	2.5 hours
	Module 2 (Algebra and Calculus) Conventional questions	100%	2.5 hours