

# St. Paul's College

## Department of Mathematics

### New Senior Secondary Curriculum–Mathematics

#### 1. A brief description of the subject offered

The Mathematics Curriculum (S4-6) is a continuation of the Mathematics Curriculum (S1-3). It is a CORE subject in the three-year New Senior Secondary Curriculum.

#### Curriculum Aims

The overall curriculum aims of the Mathematics Education Key Learning Area are to :

- further develop students' mathematical knowledge, skills and concepts;
- provide students with mathematical tools for their personal development and future career pathways;
- develop in students the generic skills, and in particular, the capability to use mathematics to solve problems, reason and communicate;
- develop in students interest in and positive attitudes towards mathematics learning;
- develop students' competence and confidence in dealing with mathematics needed in life.

#### Interface with Post-secondary Pathways

The curriculum aims to prepare students for a range of post-secondary pathways, including tertiary education, vocational training and employment. It consists of a Compulsory Part and an Extended Part. In order to broaden students' choices for further study and work, two modules in the Extended Part are provided to further develop their knowledge of mathematics.

These two modules are designed to cater for students who intend to:

- pursue further studies which require more mathematics; or
- follow a career in fields such as natural sciences, computer sciences, technology or engineering.

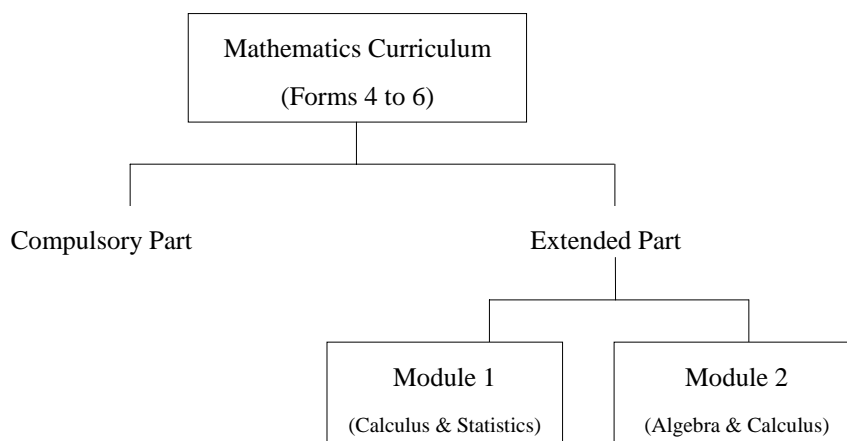
Module 1 (Calculus and Statistics) focuses on statistics and the application of mathematics, and is designed for students who will be involved in study and work which demand a wider knowledge and deeper understanding of the application of mathematics, in particular, statistics.

Module 2 (Algebra and Calculus) focuses on mathematics in depth and aims to cater for students who will be involved in a mathematics-related discipline or career.

The students' performance in the public examinations in the Compulsory Part, Module 1 and Module 2 will be separately reported for the reference of different stakeholders.

#### Curriculum Framework

The structure of the Mathematics Curriculum (S4 – 6) can be represented diagrammatically as follows :



Students may take one of the following :

- (1) Compulsory Part only ;
- (2) Compulsory Part with Module 1; or
- (3) Compulsory Part with Module 2.

Students are only allowed to take at most one module from the Extended Part.

## 2. Proposed Schedule of topics

Year	Compulsory Part	Module 1	Module 2
<b>Form 4</b>	<ul style="list-style-type: none"> <li>• Quadratic equations in one unknown</li> <li>• Functions and graphs</li> <li>• Exponential and logarithmic functions</li> <li>• More about polynomials</li> <li>• More about trigonometry</li> </ul>	<ul style="list-style-type: none"> <li>• Foundation knowledge</li> </ul>	<ul style="list-style-type: none"> <li>• Foundation knowledge</li> </ul>
<b>Form 5</b>	<ul style="list-style-type: none"> <li>• Variations</li> <li>• Arithmetic and geometric sequences and their summations</li> <li>• Inequalities and linear programming</li> <li>• More about graphs of functions</li> <li>• Basic properties of circles</li> <li>• Locus</li> <li>• Equations of straight lines and circles</li> </ul>	<ul style="list-style-type: none"> <li>• Differentiation and its applications</li> <li>• Integration and its applications</li> </ul>	<ul style="list-style-type: none"> <li>• Limits and differentiation</li> <li>• Integration</li> </ul>
<b>Form 6</b>	<ul style="list-style-type: none"> <li>• Permutation and combination</li> <li>• More about probability</li> <li>• Measures of dispersion</li> <li>• Uses and abuses of statistics</li> </ul>	<ul style="list-style-type: none"> <li>• Further probability</li> <li>• Binomial, Poisson and geometric distribution and</li> </ul>	<ul style="list-style-type: none"> <li>• Matrices and systems of linear equations</li> <li>• Vectors</li> </ul>

	<ul style="list-style-type: none"> <li>• Further applications</li> <li>• Inquiry and investigation</li> </ul>	<ul style="list-style-type: none"> <li>• their applications</li> <li>• Point and Interval Estimation</li> </ul>	
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### 3. Public Assessment and School-based Assessment

The table below outlines the assessment design for the public assessment for the Compulsory Part and Extended Modules 1 and 2.

#### *Compulsory Part*

	Component	Weighting	Duration
Public examination	Paper 1 Conventional questions	65%	2 h 15 min
	Paper 2 Multiple-choice questions	35%	1 h 15 min

#### *Module 1 (Calculus and Statistics)*

	Component	Weighting	Duration
Public examination	Conventional questions	100%	2 h 30 min

#### *Module 2 (Algebra and Calculus)*

	Component	Weighting	Duration
Public examination	Conventional questions	100%	2 h 30 min

From the tables above, the public assessment of the Compulsory Part will comprise a public examination of two papers, of which all the questions have to be attempted; while for the two modules in the Extended Part, there will only be a public examination, of which all the questions have to be attempted.

#### **Reference:**

EDB NSS Curriculum and Assessment Guide (Mathematics)

Handouts of Briefing session on Public Assessment of HKDSE Mathematics