Chapter 1 Aims and Objectives

Mathematics pervades all aspects of life and has been central to nearly all major scientific and technological advances. Many of the developments and decisions made in our Community rely to an extent on the use of mathematics. Mathematics is considered as a powerful means of communication, a tool for studying other disciplines, an intellectual endeavour, a mode of thinking and a discipline through which students can develop their ability to appreciate the beauty of nature, think logically and make sound judgment (CDC, 2002)[1]. It is valuable to help students develop necessary skills for lifelong learning. Besides foundation skills and knowledge in mathematics for all citizens in the society, it is also important to widen mathematics experience to those students who are mathematically inclined.

The Advanced Level (AL) Pure Mathematics Curriculum is a two-year sixth form course designed for students intending to continue their studies in mathematics, engineering, science and technology. Students studying this curriculum are expected to have acquired mathematical knowledge at the Certificate of Education level, but previous knowledge of Additional Mathematics at the Certificate of Education level is not required.

This curriculum and assessment guide is presented as a revised edition of the *Syllabuses for Secondary Schools – Pure Mathematics (Advanced Level) 1992*. The curriculum has been scheduled for implementation in schools with effect from September 2004 at Secondary 6 and the first public examination will be held in 2006.

Overall Aims of Mathematics Education

The overall aims of mathematics education (CDC, 2000)[2] are to develop:

- our youngsters' knowledge, skills and concepts of mathematics and to enhance their confidence and interest in mathematics, so that they can master mathematics effectively and are able to formulate and solve problems from a mathematical perspective; and

1 CDC (2002). *Mathematics Education Key Learning Area Curriculum Guide (Primary 1 – Secondary 3) (P.2)*. Hong Kong: The Printing Department.
2 CDC (2000). *Learning to Learn: Key Learning Area Mathematics Education – Consultation Document (P.7)*. Hong Kong: The Printing Department.

- their thinking abilities and positive attitudes towards learning mathematics and build related generic skills throughout their life time.

Objectives of the AL Pure Mathematics Curriculum

The objectives of the AL Pure Mathematics Curriculum are to:

- develop students' understanding of more advanced mathematical concepts and processes and build up better foundations for further studies in the fields of mathematics, engineering, science and technology;

- strengthen students' abilities to conceptualize, inquire and reason mathematically, and to use mathematics to formulate and solve problems in mathematical context and other disciplines;

- strengthen students' abilities to communicate with others logically and critically in mathematical languages; and

- develop students a positive attitude towards mathematics learning and the capability of appreciating the aesthetic nature and cultural aspect of mathematics.