2. GUIDE TO THE SYLLABUS

This syllabus is presented in integrated form and it provides, through its suggested 'Time Ratio' and 'Notes on Teaching', an indication on how and to what depth a cel1ain topic could be treated.

The suggested time allocation for the course is 4 periods per week and it is assumed that there are 40 minutes in each period. However, schools may choose a slightly different time allocation to allow for their own situations.

In the syl1abus, there are 3 main topic areas comprising 10 units. They are presented in a sequence as follows:

			Topic Area	*Time Ratio*
I.	**Differential Equations**			
	Unit	1	First Order Differential Equations and its Applications	17
		2	Second Order Differential Equations and its Applications	28 (45)
II.	**Numerical Methods**			
	Unit	3	Interpolation and Lagrange Interpolating Polynomials	9
		4	Approximation	12
		5	Numerical Integration	13
		6	Numerical Solution of Equations	16 (50)
III.	**Probability and Statistics**			
	Unit	7	Introductory Probability Theory	19
		8	Basic Statistical Measures	8
		9	Random Variables, Discrete and Continuous Probability Distributions	34
		10	Statistical Inference	27 (88)
			Total:	183

Teachers should note that the sequence presented in this syllabus is just an example.

In fact, they are free to choose their own teaching sequences. For example, the following is another alternative: ‘Probability and Statistics’, ‘Differential Equations’ and ‘Numerical Methods’.

It is hoped that the presentation in the syllabus will provide teachers with maximum flexibility so that courses can be adjusted to meet the individual teaching situation.

The time ratio given in each unit (and hence in each topic area) is the numerator of a fraction whose denominator, 190, is related to the total time spent on the subject during the two years. This has taken into account the time spent on classroom tests and examinations. It is intended that this time ratio will indicate what fraction of the total time may be spent on the unit in question. It can be seen that the total time ratio is still 7 running short. This amount of time is expected to be spent in revising the various units at the end of the course.

Specific objectives are given for each topic area, and in the ‘Detailed Content’, the subject matter of the unit is broken down into sub-units.

The teaching methods suggested in the ‘Notes on Teaching’ are by no means exhaustive. While providing an example of a way in which each given topic may be taught, the notes also try to indicate the type of treatment required. However, in order to gear to the overall objectives of the syllabus, teachers are advised to provide students with more well-structured applications of the topics in real-life problems (such as chemical reaction, decay, growth, cooling, quality inspection, decision making etc). In this way, students will be helped to develop analytic, critical and independent thinking (as they have to analyze the relevant information given and select the appropriate methods to tackle the problems). Moreover, an understanding of the concepts and principles of mathematical processes and their relations to different situations will arouse and stimulate students’ interest, and nurture their appreciation of the power and usefulness of mathematics. Consequently, students’ confidence in applying mathematics will be elevated.

Finally, teachers should regard the notes on teaching as a guide to the spirit of the syllabus rather than a rigid teaching plan that must be followed closely. They are encouraged to explore and discover their own teaching methods and approaches as they think suitable.

In the Appendix, titles of mathematics books, including glossaries and encyclopedias which are useful in the teaching of the Advanced Level Applied Mathematics course are listed for teachers' reference. To get the updated references, teachers must, however, keep themselves informed of new and recent developments in the teaching of the course.