

SING YIN SECONDARY SCHOOL
Syllabus for F.5 Mathematics (2016-2017)
Extended Part – Module 1

Textbook : New Progress in Senior Mathematics – Module 1 Book 1
S. N. Suen & K.T. Hung HK Educational Publishing Co.

New Progress in Senior Mathematics – Module 1 Book 2
P.H. Cheung, W.M. Chu and C.K. Kwun HK Educational Publishing Co.

Students are expected to develop the following attitudes:

- to love logical thinking
- to accept careful work as important
- to accept challenging work.

Chapter	Topics	Approx. No. of Period	Objectives
5	Application of Differentiation	12	<ul style="list-style-type: none"> • To use differentiation to solve problems involving tangents, rates of change, maxima and minima. • Local and global extrema.
6	Indefinite Integrals	13	<ul style="list-style-type: none"> • To recognize the concept of indefinite integration. • To understand the basic properties of indefinite integrals and basic integration formulas. • To use basic integration formulas to find the indefinite integrals of algebraic functions and exponential functions. • To use integration by substitution to find indefinite integrals. • To use indefinite integration to solve problems.
7	Definite Integrals	18	<ul style="list-style-type: none"> • To recognize the concept of definite integration. • To recognize the Fundamental Theorem of Calculus and understand the properties of definite integrals. • To find the definite integrals of algebraic functions and exponential functions. • To use integration by substitution to find definite integrals. • To understand the trapezoidal rule and use it to estimate the value of definite integrals.
8	Applications of Definite Integrals	7	<ul style="list-style-type: none"> • To use definite integration to find the area of plane figures. • To use definite integration to solve problems. <div style="background-color: #e0e0e0; padding: 5px;"> <ul style="list-style-type: none"> • To use definite integration to find the volume by revolving about the x-axis. </div>
9	Further Probability	9	<ul style="list-style-type: none"> • To understand the concepts of conditional probability and independent events. • To use the laws $P(A \cap B) = P(A)P(B A)$ and $P(D C) = P(D)$ for independent events C and D to solve problems. • To use Bayes' Theorem to solve simple problems
10	Discrete	8	<ul style="list-style-type: none"> • To recognize the concept of a discrete random variable.

	Random Variables		<ul style="list-style-type: none"> To recognize the concept of discrete probability distribution and its representation in the form of tables, graphs and mathematical formulae. To recognize the concepts of expectation $E(X)$ and variance $\text{Var}(X)$ and use them to solve simple problems. To use the formulas $E(aX + b) = aE(X) + b$ and $\text{Var}(aX + b) = a^2\text{Var}(X)$ to solve simple problems.
11	Binomial Distribution	8	<ul style="list-style-type: none"> To recognize the concept and properties of the binomial distribution. To calculate probabilities involving the binomial distribution. To use binomial distribution to solve problems.
12	Geometric Distribution	7	<ul style="list-style-type: none"> To recognize the concept and properties of the geometric distribution. To calculate probabilities involving the geometric distribution. To use geometric distribution to solve problems.
13	Poisson Distribution	8	<ul style="list-style-type: none"> To recognize the concept and properties of the Poisson distribution. To calculate probabilities involving the Poisson distribution. To use Poisson distribution to solve problems. To use binomial, geometric and Poisson distribution to solve problems.

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Signature of Teacher In Charge : _____

Checked by : _____