SING YIN SECONDARY SCHOOL
Syllabus for F.5 Mathematics (2016-2017)
Extended Part – Module 2

Textbook : New Progress in Senior Mathematics – Module 2 Book 1 & Book 2
W. M. Chu & H. M. Chan 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
4	Limits and Derivatives	8	• To understand the intuitive concept of the limit of a function • To find the limit of a function • To understand the concept of the derivative of a function
5	Differentiation (1)	9	• To understand the concept of the derivative of a function • To understand the addition rule, power rule, product rule, quotient rule and chain rule of differentiation • To find the derivatives by implicit differentiation
6	Differentiation (2)	9	• To find the derivatives of functions involving exponential and logarithmic functions • To find the derivatives of functions involving trigonometric functions • To find the second derivative of an explicit function
7	Applications of Differentiation	18	• To find the equations of tangents and normals to a curve • To find maxima and minima • To sketch curves of polynomial functions and rational functions • To solve the problems relating to rate of change, maximum and minimum
8	Indefinite Integrals	21	• To recognise the concept of indefinite integration • To understand the properties of indefinite integrals • To use the integration formulas of algebraic functions, trigonometric functions and exponential functions to find indefinite integrals • To understand the applications of indefinite integrals in real-life or mathematical contexts • To use integration by substitution to find indefinite integrals • To use trigonometric substitutions to find the indefinite integrals involving $\sqrt{a^2-x^2}$, $\sqrt{x^2-a^2}$ or $\sqrt{a^2+x^2}$ • To use integration by parts to find indefinite integrals
9	Definite Integrals	14	• To recognise the concept of definite integration • To understand the properties of definite integrals • To find definite integrals of algebraic functions, trigonometric functions and exponential functions • To use integration by substitution to find definite integrals • To use integration by parts to find definite integrals

			• To understand the properties of the definite integrals of even, odd and periodic functions
10	Applications of Definite Integrals	9	• To understand the application of definite integrals in finding the area of a plane figure • To understand the application of definite integrals in finding the volume of a solid of revolution about a coordinate axis or a line parallel to a coordinate axis
			• To understand the application of definite integrals in finding the length of arc.

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Signature of Teacher In Charge : _____

Checked by : _____