澳門大學
UNIVERSIDADE DE MACAU
UNIVERSITY OF MACAU

Course information

Course Title: (in Chinese and English)	Pre-Calculus 微積分的預備知識
Credit Units:	0
Pre-requisite: (if any)	None
Course Description: (in no more than 100 words)	This is an elementary mathematics course for science & engineering students. The goal of this course is to reinforce students' knowledge in elementary mathematics which is needed in calculus. Offered students with their mathematic subject scores below a specific score decided by the Faculty are required to take and complete this course in the Summer Term before admission. If a student cannot pass the test, he/she can redo the test during the first semester after admission.
Intended Learning Outcomes (ILO):	Upon completion of this course, students are expected to have knowledge and skills in solving fundamental problems in the areas of: 1. Algebra 2. Coordinate Geometry 3. Functions 4. Trigonometry

Major Assessment Methods: For each Major Assessment Method below, please indicate the specific assessment methods involved (by putting a "✓" in the relevant box(es) on the right-hand side).	Case Study	Role Playing	Student Presentation	Individual project / paper	Group project / paper	Group discussions	Writing Assignment	Exercises & problems	Service learning	Internship	Field study	Company visits	Reading & Writing Assessments / tests	Listening & Oral Assessments / tests	Others
Class Participation / Discussion _____%															
Assignment(s) _____%															
Test(s) ___100____%								X							
Examination _____%															
Others *(please specify)* _____ %															

Course Content:
(topic outline)

Topics
Real number system. Set language. Cartesian products.
Nature of equations, identities and functions. Linear and quadratic equations.
Polynomials. Remainder and factor theorems.
Binomial expansion. Indices and surds. Logarithms.
Manipulation of simple algebraic inequalities and

		simple absolute inequalities.	
		Coordinate geometry of straight lines and circles. Tangents and normal. Intersection of lines and circles. Polar coordinates. (Conics is NOT covered.)	
		Mappings, functions, domain and range. Graphs. Linear and quadratic functions, exponential functions, rational functions, logarithmic functions. Inverse functions.	
		Radian, arc and sector. Trigonometric functions. Identities. Laws of sine and cosine.	
		Compound angle formulas. Inverse Trigonometric functions.	
		Trigonometric equations and general solutions.	