

## Equations and Identities (E2MAT004C)

<p><b>Introduction</b></p>	<p>Equations and identities are fundamental elements in algebra. In order to achieve further level in algebra and other fields of Mathematics (e.g. calculus), one must have solid background on these topics. Also, in our daily lives, many problems could be solved by equations. In this course, some basic techniques in handling identities and equations will be explored.</p> <p>This is the first programme in the <b>Subject Core Series</b> which is comprised of four level II programmes. They are namely</p> <ol style="list-style-type: none"> <li>1. Equations and Identities</li> <li>2. Handling Sequences and Series</li> <li>3. Plane Geometry</li> <li>4. Quadratic Functions and Standard Conics</li> </ol>
<p><b>Programme Type / Level</b></p>	<p>Algebra Course (Level II) (<a href="#">Token-required</a>)</p>
<p><b>Instructor(s)</b></p>	<p>Mr Tse Siu On</p>
<p><b>Pre-requisites</b></p>	<p>Students should have:</p> <ul style="list-style-type: none"> <li>• the ability to perform basic algebraic manipulations such as addition and multiplication of polynomials, simplification of rational expressions, etc.;</li> <li>• basic ideas on handling simple linear equations such as finding root and forming equation with given root;</li> <li>• knowledge about basic operations such as addition and multiplication of surds.</li> </ul>
<p><b>Target Participants</b></p>	<ul style="list-style-type: none"> <li>➢ S1 – S3 HKAGE student members</li> <li>➢ Class size: 30</li> </ul> <p>This programme is the same as Algebra Course (Level 2): Equations and Identities (MATS2220) in 19/20 school year.</p>
<p><b>Medium of Instruction</b></p>	<p>Cantonese with English handouts</p>
<p><b>Certificate</b></p>	<p><b>E-Certificate</b> will be awarded to participants who have:</p> <ul style="list-style-type: none"> <li>❖ Attended <b>AT LEAST 3</b> sessions AND</li> <li>❖ Attained <b>satisfactory performance</b> in all assessments.</li> </ul>
<p><b>Intended Learning Outcomes</b></p>	<p>Upon completion of the programme, participants should be able to:</p> <ol style="list-style-type: none"> <li>1. Apply basic identities to solve related problems;</li> <li>2. Determine critically which method to be used when solving a quadratic equation;</li> <li>3. Analyse the nature of roots and relation between roots and coefficients for any given quadratic equations.</li> </ol>
<p><b>Screening</b></p>	<p>Please answer the screening question in the online application form. *The screening question is designed to help the applicant understands the course level and the course content. The question must be answered by the student applicant and it can only be attempted once. The answer cannot be changed once the application is submitted. Selection is based on students' performance in answering the question. Only students who can demonstrate motivation and the basic knowledge of equations and identities in the screening question can be enrolled in the programme.</p>
<p><b>Application Deadline</b></p>	<p><b>3 May 2021</b> <b>12:00 n.n.</b></p> <p><b>Application Result Release Date</b> <b>14 May 2021</b></p> <p>If student members withdraw from the programme after the Application Deadline, the token will be deducted.</p>

## Schedule

Session	Date	Time	Venue (HKAGE)
1	19 Jun	2:00 p.m. – 5:00 p.m.	Room 303
2	26 Jun		
3	3 Jul		
4	10 Jul		

### Remarks:

For any assessment to be held in the programme, no make-up will be arranged.

## Sample Example for the Programme

### Forming equation with given roots

Given  $\alpha$ ,  $\beta$  be the roots a quadratic equation

The quadratic equation is

$$(x-\alpha)(x-\beta) = 0$$

sum of roots

$$x^2 - (\alpha + \beta)x + \alpha\beta = 0$$

product of roots

The required equation is

$$x^2 - (\text{sum of roots})x + (\text{product of roots}) = 0$$

## Enquiries

For enquiries, please contact Academic Programme Development Division on 3940 0101 after language selection, press "1".