



S1IM0007C

(Token- required)

CGMO Training Course

CGMO Training 2023 (Phase I)

Instructor from International Mathematical Olympiad
Hong Kong Committee

CGMO
TRAINING 2023

Phase I



Application Deadline
31 Jan 2023 12:00 noon

Result Release
24 Feb 2023

Intended Learning Outcomes

Upon completion of the programme, participants should be able to:

1. broaden mathematical knowledge in a variety of areas on the basis of senior secondary mathematics curriculum
2. strengthen the problem solving and higher-order thinking skills
3. learn more about the scope of International Mathematical Olympiad Training



◆ Introduction

- An introductory level comprehensive mathematics programme which covers a wide range of topics
- Broaden students' mathematical knowledge and strengthen their problem-solving skills
- Consists of 3 phases
- Outstanding students in the programme will represent Hong Kong in China Girls Mathematical Olympiad (CGMO) 2023 held in summer

This programme is co-organized with International Mathematical Olympiad Hong Kong Committee (IMOHKC)

◆ Target Participants

- S1 to S6 HKAGE **female** student members
- Class size: 20

All applicants **MUST** attend the **Aptitude Test** held on **18 Feb 2023**.

Except for those who have

- a) completed any phase of International Mathematics Olympiad Training, CGMO Training or Introduction to Olympiad Mathematics before **OR**
- b) attended the Aptitude Test held on 14 May 2022, 20 Aug 2022 or 19 Nov 2022

Remarks:

- Due to the limited seats in computer rooms, students who attended the Aptitude Test on 19 Nov 2022 would not be allowed to take the test on 18 Feb 2023. Their results on 19 Nov 2022 will be used for this programme.
- Students will be selected randomly in attending the Aptitude Test if the application is over-subscribed. Only selected students could join the Aptitude Test held on 18 Feb 2023.
- A notification email will be sent on **8 Feb 2023** for the application result of the Aptitude Test.
- All unselected students will be regarded as their application of this programme unsuccessful.

This programme is the same as CGMO Training 2020 (Phase I) (MATS1121) in 19/20 school year and CGMO Training 2022 (Phase I) (E1IM0007C) in 21/22 school year.

◆ Medium of Instruction

Cantonese with English handouts

◆ Pre-requisite

Students should know the basic knowledge of the following:

Quadratic Equations and Functions, Binomial Theorem, Mathematical Induction, Remainder Theorem and Factor Theorem, Arithmetic and Geometric Sequences, Circles and Trigonometry



◆ Aptitude Test

- Students who wish to apply for this programme must take a general aptitude test on **18 Feb 2023 (2:00 p.m. – 4:00 p.m.)**. Except for those who have attended the Aptitude Test held on 14 May 2022, 20 Aug 2022 or 19 Nov 2022.
- This general aptitude test consists of 100 multiple choice questions which covers a wide range of topics in mathematics. The purpose of the test is to figure out the applicant's knowledge in different fields of mathematics in order to choose the most suitable students for different programmes. Neither under-qualified nor over-qualified students will be admitted.
- The next aptitude test is tentatively scheduled on **13 May 2023**. The result of an aptitude test will be valid for one year. If a student takes the test more than once, the latest result will prevail. The following table lists the programmes for which the results of this general aptitude test will apply.

Programme Date	Code	Programme Name	Aptitude test valid			
			14 May 2022	20 Aug 2022	19 Nov 2022	18 Feb 2023
Mar 2023	S1IM0007C	CGMO Training 2023 (Phase I)	✓	✓	✓	✓
Mar 2023	S1IM0008C	Introduction to Olympiad Mathematics 2023 (Phase I)	✓	✓	✓	✓
Jul 2023	S1IM0001C	Maths Ignition - Combinatorics		✓	✓	✓
Aug 2023	S1IM0002C	Maths Ignition - Geometry		✓	✓	✓
Sep 2023	S1IM0003C	Maths Ignition - Number Theory			✓	✓
Nov 2023	S1IM0004C	Maths Ignition - Algebra			✓	✓

Remarks:

1. All aptitude tests will only be arranged on the designated dates. No make-up test will be arranged.
2. No Calculator is allowed.
3. Please bring along with your Identification Card, e.g. HKID, student ID.
4. Please arrive at the venue 15 minutes prior to the Aptitude Test begins.

If students who have selected to join the aptitude test are absent without any reasons and prior notification provided, it will result in a lower priority in joining the aptitude test next time when they apply.

◆ Certificate

E-Certificate will be awarded to participants who have:

- attended **at least 7 sessions**; and
- completed all the assignments with satisfactory performance



◆ Schedule

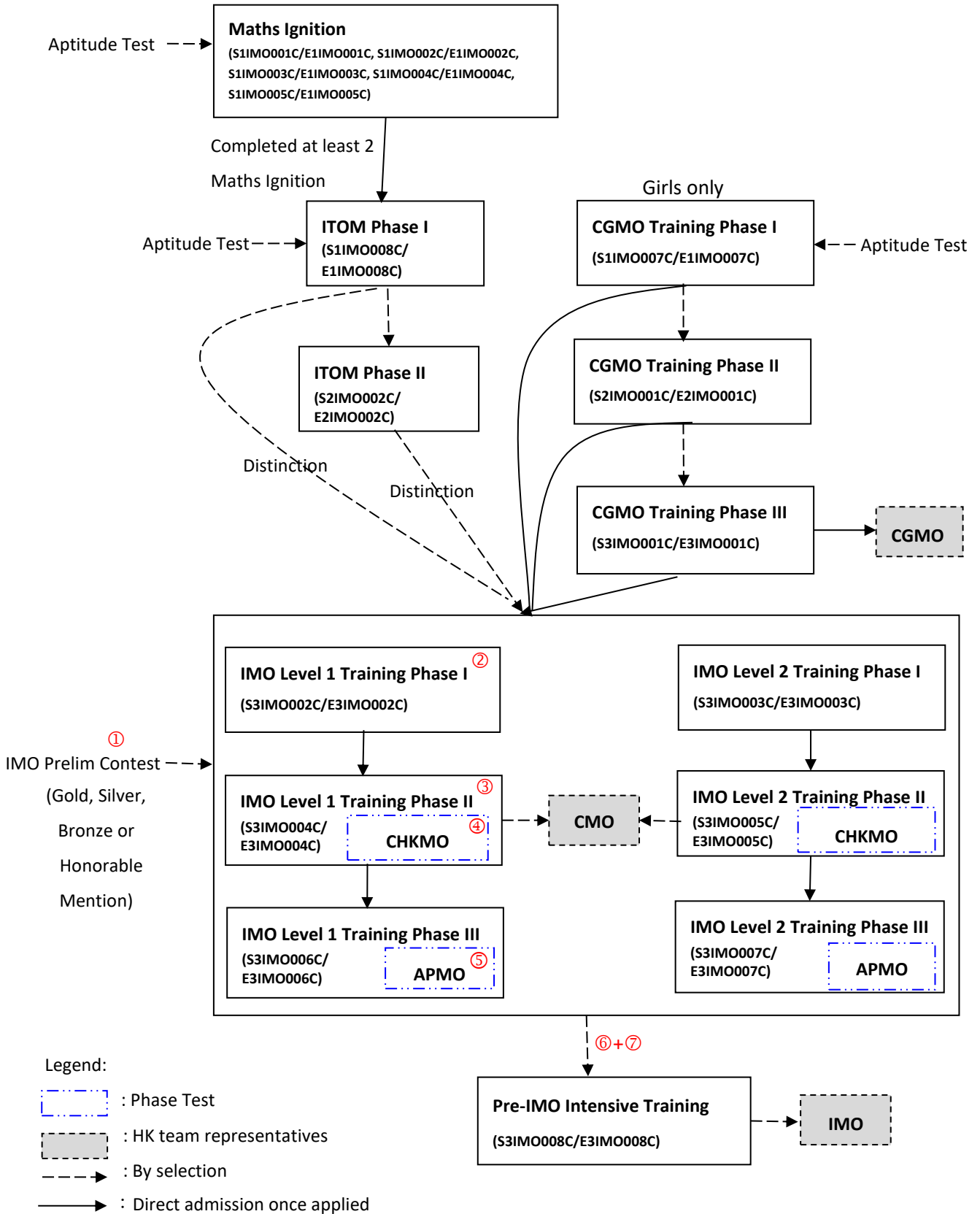
Session	Date	Time	Venue
Aptitude Test	18 Feb 2023	2:00 p.m. – 4:00 p.m.	Welkin Systems Limited, 7/F, Righteous Centre, 585 Nathan Road, Mongkok (MAP)
1	4 Mar	2:00 p.m. – 5:30 p.m.	Room 403, HKAGE
2	11 Mar		
3	18 Mar		
4	25 Mar		Room 204, HKAGE
5	1 Apr		
6	15 Apr		
7	22 Apr		
8	29 Apr		
9	6 May		

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

◆ Sample Notes

1. Do there exist 2017 consecutive positive integers, each of which has at least two prime factors?
2. Let ABC be an acute triangle and D, E, F be the feet of its altitudes. If P and Q denote the perimeters of $\triangle ABC$ and $\triangle DEF$ respectively, what are the possible values of $\frac{P}{Q}$?

International Mathematical Olympiad Related Programmes



Remarks:

ITOM – Introduction to Olympiad Mathematics
 CGMO – China Girl’s Mathematical Olympiad
 IMO – International Mathematical Olympiad

CHKMO – Hong Kong (China) Mathematical Olympiad
 CMO – Chinese Mathematical Olympiad
 APMO – Asian Pacific Mathematics Olympiad

IMO HK Team representatives are selected based on their performance in the assessments from ① through ⑦

IMPORTANT information for International Mathematical Olympiad (IMO) Training

Phase Trainings			
Eligibility			
<ul style="list-style-type: none"> ● IMO Preliminary Selection Contest awardees ① or ● Student members who have been a trainee in any phase of the IMO Training or ● Student members who have completed any phase of CGMO Training or ● Student members who have completed any phase of ITOM Training with Distinction 			
Training /Competition	Content	Excepted Schedule	Remark
Phase I Training	13 x 3-hr lessons	Jul - Aug	
	Test 1 ② 3 hr, 6 proof problems	Aug	✧ Phase test ✧ No make-up test
Phase II Training	17 x 3-hr lessons	Sep - Dec	
	Test 2 ③ 3 hr, 4 proof problems	Oct	✧ Phase test ✧ No make-up test
	CHKMO ④ 3 hr, 4 proof problems	Dec	✧ Phase test ✧ No make-up tests
CMO	2 days x 4.5 hr, 3 proof problems	Dec or Jan	6# students selected based on Prelim ①, Test 1 ②, and Test 2 ③
Phase III Training	8 x 3-hr lessons	Jan - Mar	
	APMO ⑤ 4 hr, 5 proof problems	Mar	✧ End-of-phase test ✧ No make-up test
Selection Tests for Pre-IMO Intensive Training	Test 3 ⑥ 4.5 hr, 3 proof problems Test 4 ⑦ 4.5 hr, 3 proof problems	Apr or May	18 students selected based on Prelim ①, Test 1 ②, Test 2 ③, CHKMO ④ and APMO ⑤ ✧ No make-up tests
Pre-IMO Intensive Training	IMO HK Team (6 students) & Alternate Team (6 students),		12 students selected based on Prelim ①, Test 1 ②, Test 2 ③, CHKMO ④, APMO ⑤, Test 3 ⑥ and Test 4 ⑦
IMO	2 days x 4.5 hr, 3 proof problems @		IMO HK Team
CGMO	2 days x 4 hr, 4 proof problems @		8# female students selected via CGMO Training (NOT IMO Training)

Subject to change. May vary from year to year.

IMO HK Team representatives are selected based on their performance in the assessments from ① through ⑦

Useful websites

IMO official website:	www.imo-official.org
IMO 2017 website:	http://www.imo2017.org.br/
Art of Problem Solving:	www.artofproblemsolving.com
Mathematical Database:	www.mathdb.org
IMO 2016 Facebook page:	www.facebook.com/imo2016
IMO 2016 newsletter IMOment:	www.edb.gov.hk/tc/curriculum-development/kla/ma/IMO/IMOment.html
Mathematical Excalibur:	www.math.ust.hk/excalibur/
reference list recommended by IMOHKC	https://docs.google.com/spreadsheets/d/1I4GNYbY2eDPPKCnD4lpnYuqNenJV0-3NgKUMDh6m5ow/edit?usp=sharing