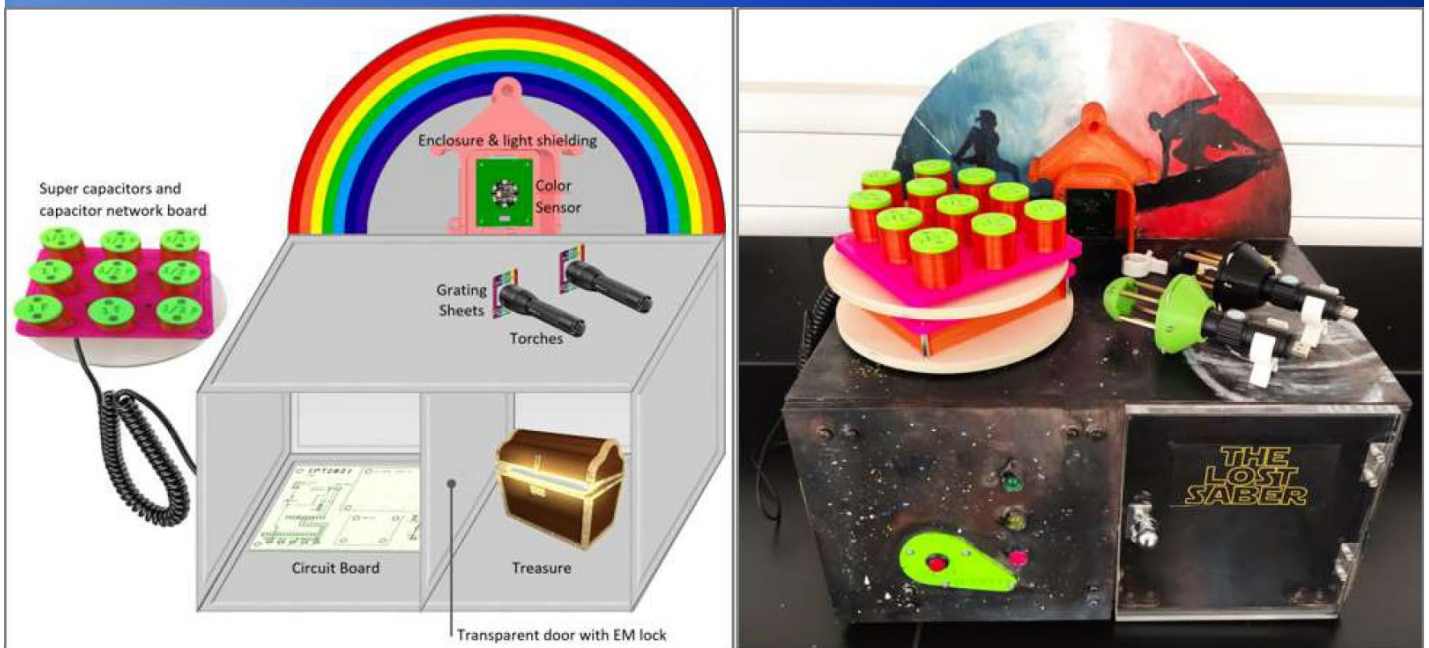




Physics Course (Level IV): The “Safe Cracking” International Physics Tournament Training Phase II

Dr CHAN Mau Hing

Lecturer, The Department of Physics, Hong Kong Baptist University



Intended Learning Outcomes

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

1. apply concepts in physics to design multiple locking mechanisms for building a safe;
2. build a safe to meet the standard of International Physics Tournament (IPT);
3. apply physics knowledge to break in other teams' safes in IPT; and
4. develop team spirit and apply their collaborative skills in designing and developing a safe, and in breaking in other teams' safes.



◆ Introduction

This training programme series aims to provide experimental physics training and apply physics principles to develop a locking mechanism (Safe) for the “Safe Cracking” International Physics Tournament (IPT). The safe development may involve app development (App Inventor), microcontroller interfacing and programming, concepts of analog and digital data, relay controls, applications of sensors, data measurements, mechanical drawing using 3D printer, and electronics with circuit board development. Training to break in other teams’ safes will also be provided. To strengthen the experimental skills, theoretical physics lectures would also be given.

◆ Schedule

Session	Date	Time	Venue
1	24 Sep 2022	9:30 a.m. – 12:30 p.m.	OEE802 (Lab), Oen Hall Building, Ho Sin Hang Campus, Hong Kong Baptist University (MAP)
2		1:30 p.m. – 4:30 p.m.	
3	15 Oct 2022	9:30 a.m. – 12:30 p.m.	
4		1:30 p.m. – 4:30 p.m.	
5	26 Nov 2022	9:30 a.m. – 12:30 p.m.	
6		1:30 p.m. – 4:30 p.m.	
7	28 Jan 2023	9:30 a.m. – 12:30 p.m.	
8		1:30 p.m. – 4:30 p.m.	
9	25 Feb 2023	9:30 a.m. – 12:30 p.m.	
10		1:30 p.m. – 4:30 p.m.	

Remarks:

- Students of this training course need to attend the 1-week “Safe Cracking” IPT 2023 in Israel (around Mar - Apr 2023). For details, please visit the official website of IPT: <https://davidson.weizmann.ac.il/en/programs/cracking>. Furthermore, you can watch the video of IPT 2019 via the following link for more information: <https://youtu.be/SAIOheCjZgQ>.
- Please note that students need to pay partial cost for the trip to Israel. (Students with financial difficulties may apply for fee remission.) Updated information for the trip of IPT 2023 will be provided later.

◆ Target Participants

- S4 to S5 HKAGE student members in 2022/23 school year
- Class size: 5

Students who have obtained Merit in the Physics Course (Level IV): The “Safe Cracking” International Physics Tournament Training Phase I (E4PHY001C).

◆ Medium of Instruction

English (supplemented with Cantonese) with English handouts

◆ Pre-requisite

No special prerequisites are needed, but preferably has talent in development skills in physics experimental setup, experience in conducting experimental physics, and good communication and presentation skills in English.

◆ Certificate

E-Certificate will be awarded to participants who have:

- attended at least 8 sessions; and
- completed all the assignments with satisfactory performance.