



# The Driving Force of Energy Flow in the Nature (E3PHY001C)

<b>Introduction</b>	Have you ever wondered why hot coffee loses thermal energy to the environment, rather than energy transfers from the environment to raise the temperature of a cup of coffee? Or why doesn't a glass of cold water lose its thermal energy to the environment to become iced water? The hidden secret of heat transfer is governed by the laws of thermodynamics. With interactive demonstrations, lecture, and practical laboratory, this programme will illustrate the laws of thermodynamics, kinetic theory of gases, heat engine and Entropy, and their applications in our daily life.
<b>Programme Type / Level</b>	Thermodynamics Course (Level III) ( <a href="#">Token-required</a> )
<b>Instructor(s)</b>	Dr Chan Mau Hing
<b>Pre-requisite</b>	No special prerequisites are needed
<b>Target Participants</b>	<ul style="list-style-type: none"><li>➤ S4 to S6 HKAGE student members only in 2021/22 school year</li><li>➤ Class size: 20</li></ul>
<b>Medium of Instruction</b>	Cantonese with English handouts
<b>Certificate</b>	<b>E-Certificate</b> will be awarded to participants who have: <ul style="list-style-type: none"><li>❖ Attended <b>at least 3 sessions</b>; <b>AND</b></li><li>❖ Completed all the assignments with <b>satisfactory performance</b></li></ul>
<b>Intended Learning Outcomes</b>	Upon completion of the programme, participants should be able to: <ol style="list-style-type: none"><li>1. Explain the laws of thermodynamics (e.g., heat engines);</li><li>2. Analyse experimental data of thermoelectric variables and make comparison to theoretical calculation;</li><li>3. Possess essential knowledge to operate temperature (e.g., thermocouple meter) and power meters for data measurements and interpretation;</li><li>4. Apply practical skills to design experiments and gadgets for various conditions related to thermodynamics (e.g., human-body temperature powered torch);</li><li>5. Demonstrate the applications of thermodynamics to improve daily life experience through reflective observation (e.g., students present daily life experience in their oral presentation).</li></ol>
<b>Screening</b>	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 Thermodynamics in the screening question can be enrolled in the programme.
<b>Application Deadline</b>	<b>22 Nov 2021 12:00 n.n</b>
<b>Application Result Release Date</b>	<b>10 Dec 2021</b>
If student members withdraw from the programme after the Application Deadline, the token will be deducted.	

## Schedule

There are 2 sets of Experiment and presentation session for this programme, please select your available timeslots of Experiment and presentation session in sequence. (From top priority to lowest priority. E.g. 1st :Group A, 2nd :Group B). You will be informed about the timeslot in regard to your choice via email in mid-Dec if you are offered.

### Group A:

Session	Date	Time	Venue
1*	15 Jan	9:00 a.m. – 12:00 n.n.	<del>Physics Laboratory, 4/F, Buddhist Kok Kwong Secondary School*</del> Zoom meeting
2*	22 Jan	9:00 a.m. – 12:00 n.n.	
3#		1:00 p.m. – 4:00 p.m.	
4#	5 Feb	9:00 a.m. – 12:00 n.n.	

### Group B:

Session	Date	Time	Venue
1*	15 Jan	9:00 a.m. – 12:00 n.n.	<del>Physics Laboratory, 4/F, Buddhist Kok Kwong Secondary School*</del> Zoom meeting
2*	29 Jan	9:00 a.m. – 12:00 n.n.	
3#		1:00 p.m. – 4:00 p.m.	
4#	5 Feb	1:00 p.m. – 4:00 p.m.	

Location: Sha Kok Estate, Shatin, N.T. ([Map](#))

\* Mass Lecture

# Experiment and presentation session: either Group A or Group B

## Enquiries

For enquiries, please contact us on 3940 0101 or email at [programme@hkage.org.hk](mailto:programme@hkage.org.hk).