E3IN0002C, E3IN0002C-2

<u>(Token- required)</u>

# **Innovation Course (Level III):**

# **Designing and Making Innovative Rehabilitation Products (Phase I)**

Mr Chris LEUNG (Decatron Innovation Limited)



## **Intended Learning Outcomes**

Result Release 23 Feb 2024

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

- 1. describe the concepts and 5-step processes of design thinking;
- 2. discuss the needs of stroke patients;
- 3. draw 3D figures using CAD software;
- 4. write and use computer programmes (e.g. Python);
- 5. apply creative problem-solving skills.

### Introduction

This programme series is designed to enhance students' knowledge and interest in Design Thinking, Internet of Things (IoT), Artificial Intelligence (AI), and applying STEM theories to real-life practice by producing innovative rehabilitation products for stroke patients. Students will engage in hands-on design challenges that focus on developing empathy, encouraging ideation, developing metacognitive awareness and fostering creative problem-solving. Throughout the programme, students will acquire skills including computer-aided design (CAD) drawing, making prototypes by using 3D printing and laser cutting, electronic circuit design, and computer programming (e.g. Python). The group design mini project would develop students in creativity, collaboration, and design talent.

#### **Schedule**

Admitted students only need to attend either Class A or Class B below.

#### Class A (E3INO002C)

Session	Date	Time	Venue
A1	13 Apr	9:30 a.m. – 12:30 p.m.	Decatron Innovation Limited
A2	20 Apr		
A3	27 Apr		
A4	4 May		

#### Class B (E3IN0002C-2)

Session	Date	Time	Venue
B1	18 May	9:30 a.m. – 12:30 p.m.	Decatron Innovation Limited
B2	25 May		
В3	1 Jun		
B4	8 Jun		

Address: Decatron Innovation Limited, Unit 03, 19/F, Yen Sheng Centre, 64 Hoi Yuen Road, Kwun Tong, Kowloon. (MAP)

#### Remarks:

- 1. Interested student please apply at either Class A (E3INO002C) or Class B (E3INO002C-2) only. If you are also available for the other class, please indicate it in the last screening question (which may slightly increase your chance of getting an offer). We shall assign you to attend either Class A or Class B according to your availability, provided that you pass the screening.
- 2. The 25 best-performing students will be promoted to join Phase II. Grades and selection results will be announced after both Class A and Class B have completed, tentatively around 20 - 30 Jun 2024.
- 3. Tentative schedule for Phase II is 6 sessions on: 13, 20, 27 Jul, 3, 10 & 17 Aug, 2024; at 9:30 a.m. -12:30 p.m.

## **Target Participants**

- S1 to S6 HKAGE student members in 2023/24 school year
- Class size: 25 for Class A, 25 for Class B, totally 50.

# **Pre-requisite**

No special prerequisites are needed

## **Medium of Instruction**

Cantonese with English Handouts

#### Certificate

E-Certificate will be awarded to participants who have:

- attended at least 3 sessions; and
- completed all the assignments with satisfactory performance.

## Screening

Please answer the screening questions in the online application form.

\*The screening questions are designed to help the applicant understands the course level and the course content. The questions must be answered by the student applicant and it can only be attempted once. The answers cannot be changed once the application is submitted. Selection is based on students' performance in answering the questions. Only students who can demonstrate motivation and knowledge of innovative rehabilitation product design in the screening questions can be enrolled in the programme.

# **Sample Notes**

Testing

Investigation

Mathematics

Data Collection and

# The 5-Step Process of Design Thinking

## **Empathize**

- Select Specific Demographic
- Carry out 1st hand and 2nd hand research
- "Be in someone else's shoes"

#### Define

- Define Problem
- Set SMART Goals

### Prototyping

• Applications of Scientific

Processing (Statistics and

- Application of Technology and Engineering
- 3D / 2D CAD CAM
- Coding and Programming

#### Ideate

- Brainstorming
- 5W1Hs
- Design Sketching

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## What does healthcare product include?







## Ergonomic Factors























