

## **REPORT ON the NFTC Two-day Training on Engineering Education**

The NFTC 2-Day Training on Engineering Education was held on **April 14<sup>th</sup> and 15<sup>th</sup>, 2022** virtually on Zoom. The training was hosted by NPU-FEIAP “Belt and Road” Engineering Education Training Center (NFTC) and supported by CAST, China Association of Science and Technology. This training was conducted with support of FAEO who helped to in the East Africa Region. The speaker of this training is Academician Professor. Ir. Dr. Chuah Hean Teik, Chairman of FEIAP Standing Committee on Engineering Education. A total of 273 participants attended the training on the first day, and 226 on the second day, with participants from China, Malaysia, Myanmar, Philippines, Kenya, Zambia, Rwanda, Uganda, Tanzania, Cambodia, and Mauritius etc., attended the training.

### ***Objectives of the training:***

The objectives of the training are:

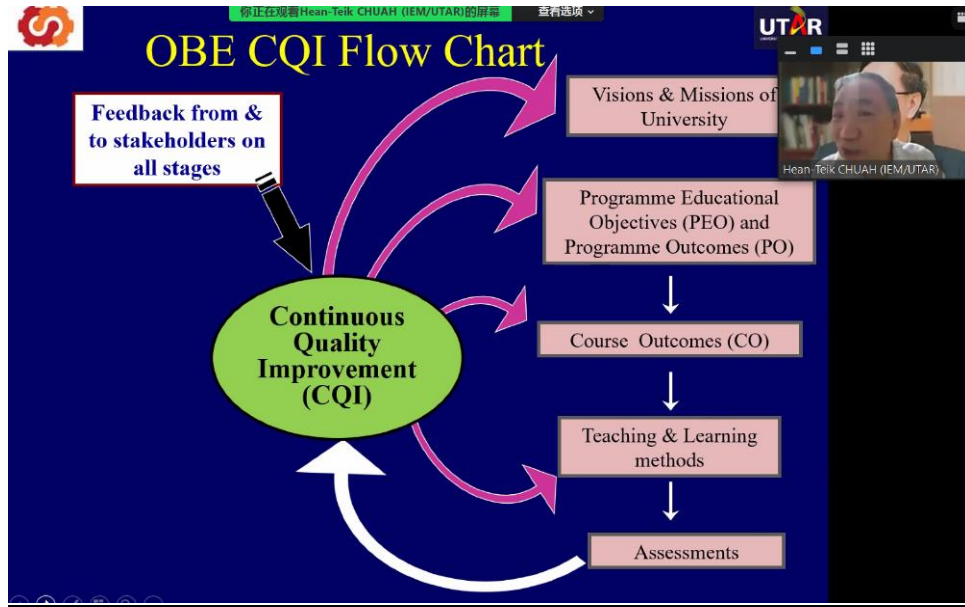
- 1) to explain outcome-based education, including its definition, essential components, and so on;
- 2) to facilitate participants to have understanding of programme education objectives (PEO'S), programme outcomes (PO's), course outcomes (CO) and performance indicators; Bloom's learning taxonomy; Assessment and evaluation methods, and continual quality improvement process;
- 3) to discuss engineering education and Bloom's taxonomy;
- 4) to help participants understand constructive alignment for PEO/PO/CO in engineering education through personal experiences;
- 5) to have in-depth discussion with participants.

### ***Day I:***

In the first day, Professor Chuah Hean Teik explained the definition of outcome-based education at the beginning, which is a frequently asked question by some participants. Prof. Chuah then introduced OBE deeply, including its essential components, and so on. Later, Prof. Chuah introduced OBE, PEO'S, PO's, CO, and performance indicators, respectively. In the Q&A session, Prof. Chuah had discussion with participants regarding the difference between OBE, Problem-based Teaching and the curriculum design, ways to get industry to participate in OBE, etc.

### ***Day II:***

In the second day, Prof. Chuah discussed engineering education and Bloom's taxonomy. Prof. Chuah explained each categorie in detail. He then introduced constructive alignment for PEO/PO/CO in engineering education through his personal experiences in Universiti Tunku Abdul Rahman. Participants all gained deeper understanding of today's topic. During the Q&A session, Prof. Chuah answered questions about his understanding of engineering terminologies, which education model applied in Malaysia, etc. Prof. Chuah had deep discussion with participants. All participants expressed their gratitude and presented their interest to join in future trainings.



### Problem Organised Project work or POPBL (Project Oriented Problem Based Learning)

The diagram shows a flow from Literature, Lectures, and Group Studies to Problem Analysis, Problem Solving, and Report. Below this, Tutorials, Field Work, and Experiment are shown. A circular diagram below illustrates a complex system with 'Unbounded System, No Experiment', 'Limited Exploration, Prediction, Control', 'Results in an abstract point', 'Complex', 'Controlled System', and 'Difficult to measure'. A note states 'A limited number of factors are captured by the Model'.

### to the Main Domains (example)

Engineering Programme Outcomes	Three Main Domains	Eight Learning Outcomes Domains
14, 6, 10, 12	Cognitive Domain	i. Knowledge vs. Scientific methods, critical thinking and problem solving skills
5, 9, 10, 11	Psychomotor Domain	ii. Practical skills iii. Social skills and responsibilities iv. Ethics, professionalism and humanities v. Communication, leadership and team skills vi. Lifelong learning and information management vii. Entrepreneurship and managerial skills
6-12	Affective Domain	

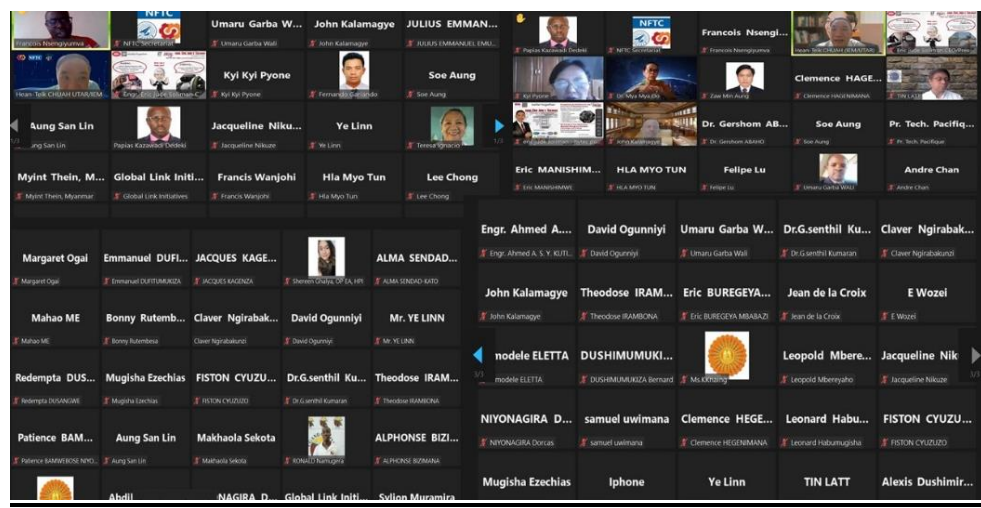
  

### eOBE (Part II: Assessment Configuration) (Cont'd)

#### UEEA 1313 Basic Electronics

AQ to CO/CLO Mapping

Assessment Item / Domain	CO1	CO2	CO3	CO4	CO5	CO6	CO7	CO8	CO9	CO10	CO11	CO12
CO101												
CO102												
CO103												



## **Visions and Objectives**

### **NPU-FEIAP B&R Engineering Education Training Center (NFTC)**

#### **Visions**

1. To have a unified and inclusive Engineering Education Standards which promotes mutual recognition of the Engineering Education Programs (Engineer, Engineering Technologist and Technician programs) among Economies in the B&R Initiative region and FEIAP member economies.
2. To facilitate and to promote mobility of the Engineers, Engineering Technologists and Technicians among the economies in B&R Initiative region and FEIAP member economies.
3. To provide continuous professional development to increase the number of competent Engineers, Engineering Technologists and Technicians who will help the economies to develop into developed nations
4. To promote understanding of civilization in B&R Initiative region and FEIAP member economies via cultivation of cultural intelligence in engineering education.
5. To promote students exchange programs among universities in the B&R Initiative region and FEIAP member economies.

#### **Objectives**

1. The NFTC is set up in NPU, Xian, China.
2. To conduct Engineering Education Accreditation Training (EEAT) based on established FEIAP Engineering Education Guidelines, FIEAP Engineering Technologist and Technician Education Guidelines
3. The Engineering Education Accreditation Training (EEAT) will cover training of Assessors, Academics and Accreditation Agencies of the economies in the B&R Initiative region and FEIAP member economies.
4. To facilitate and promote of mutual recognition of Engineering Education Programs among the Universities in the B&R Initiative region and FEIAP member economies, which is keystone for the mobility of Engineering Personnel (e.g. Engineers, Engineering Technologists and Engineering Technicians).
5. To facilitate and promote students exchange program among the Universities in the B&R Initiative region and FEIAP member economies.
6. To facilitate and promote the mobility of engineering personnel (e.g. Engineer, Engineering Technologist and Technician) who has fulfilled the FEIAP Engineering

Education Standards in the economies of the B&R Initiative region and FEIAP member economies.

7. To conduct Professional Development courses for Infrastructure Development and Maintenance for the Engineers, Engineering Technologists and Technicians.
8. To facilitate and promote the networking of the engineering personnel (e.g. Engineer, Engineering Technologist and Technician and Academics) to share knowledge, experiences, business opportunities and friendship for closer ties among the engineering fraternity in the economies of the B&R Initiative region and FEIAP member economies.
9. To improve and keep up to development of the world on the Engineering Education and Training to benefit the economies of the B&R Initiative region and FEIAP member economies.
10. To be a platform for exchange of academics and engineering students in B&R and FEIAP member economies.