Appendix 4.2

[IoT System for Water Reuse in Developing Cities]
[Knowledge transfer meeting and workshop II]
Report/Minutes Form

I. Organizer:

Name:	Dr. Ho Ngo Anh Dao
Position:	Person in charge of the Faculty of Environment and Labour Safety
Institution:	Ton Duc Thang University

II. Program:

1. Collaboration discussion meeting, closed project meeting, and closed knowledge transfer talk show
   Date: 16/12/2023
   Venue: Ton Duc Thang University, Tan Phong campus, Ho Chi Minh city, Vietnam
2. Open workshop
   Date: 17/02/2023
   Venue: Ton Duc Thang University, Tan Phong campus, Ho Chi Minh city, Vietnam

Program Agenda:

Date and time	Activities	Participant
Day 1: 16/02/2023		
8.30-9.45	Meeting between NICT, USM, and 3 departments of TDTU as members of ASEAN IVO 2021 project and the TDTU representatives – the International Cooperation, Research and Training Institute (INCRETI), who signed the CRDA Activities: - Introduction of TDTU in term of ICT technology and the case studies - Discussion for international cooperation	***Project member:*** Huan-Bang Li Matsumura Takeshi Leo Choe Peng Yu Kok Hwa Ho Ngo Anh Dao Nguyen Thanh Quang ***Representatives of NICT*** Hiroshi EMOTO ***Representatives of TDTU*** Dinh Hoang Bach - INCRETI
9.45-10.00	Tea Break	
10.00-10.30	Site tour to observe the water filtration system and the IoT system as case studies installed and operated in TDTU campus	All project members and Representatives of TDTU
10.30-12.00	Report and discussion on progress of ASEAN IVO project 2021 Discussion on application of IoT techniques on other fields (i.e., agriculture, surface water monitoring) to develop the research topic	***Project member:*** Huan-Bang Li Matsumura Takeshi Leo Choe Peng Yu Kok Hwa

Date and time	Activities	Participant
		Ho Ngo Anh Dao Nguyen Thanh Quang
12.00-13.00pm	Lunch	
13.00 – 16.30_group 1	Sharing the knowledge for lectures and undergraduate students about membrane filtration techniques and water reuse based on the results obtained in the ASEAN IVO 2021 project	Leo Choe Peng (presenter) Ho Ngo Anh Dao (presenter) 5 faculty members > 20 students
13.00 – 16.30_group 2	Sharing the knowledge for lecturers and undergraduate students about D2D and IoT techniques based on the results obtained in the ASEAN IVO 2021 project	Huan-Bang Li (presenter) Matsumura Takeshi Yen Kim Sam Yu Kok Hwa (presenter) Nguyen Thanh Quang 5 faculty members 20 students (see the Appendix)
14.30-15.00	Tea Break	
Day 2: 17/02/2023		
8.00-8.10	Welcome remarks	Project Leader
8.10-8.15	Opening remarks	INCRETI (TDTU)
8.15-8.30	Introduction to TDTU	ENLABSAFE, FEEE
8.30-9.00	Introduction to NICT	NICT
9.00-9.30	Introduction to USM	USM
9.30 -10.00	Tea Break	Participants build connection
10.00 -10.45	Topic 1: Application of AnMBR for seafood processing wastewater treatment	Assoc. Prof. Tran Le Luu
10.45-11.30	Topic 2: Application of IoT techniques for measuring & surveying energy consumption of air conditioning system under different environmental conditions	Dr. Dinh Hoang Bach
11.30 -13.00	Lunch	
13.00 – 13.45	Topic 3: IoT based smart water quality monitoring system: A case study in Vietnam	Dr. Tran Thi Phuong Quynh
13.45 – 14.30	Topic 4: Environmental monitoring using IoT web based NodeRed	Dr. Tran Viet Hung
14.30 – 15.15	Topic 5: IoT system for water reuse in Mekong Delta region.	Dr. Kim DoKyong
15.15 – 15.30	Tea break	Participants build connection.
15.30 – 16.15	Topic 6: Water environment monitoring of aquaculture ponds	Mr. Mai Minh Man Mr. Le Duc Phuong
16.15 – 17.00	Topic 7: Wireless communication for IoT devices	Dr. Tu Lam Thanh
17.00 – 17.15	Closing remarks	Representative of TDTU Project Leader

III. Participants:

No.	Name	Organization	Itinerary
1	Leo Choe Peng	USM (Project leader)	15-18/2/2023
2	Yu Kok Hwa	USM (Project member)	15-18/2/2023
3	Hiroshi EMOTO, Ph.D	Global Alliance Dept., NICT	15-17/2/2023
4	Huan-Bang Li	NICT (Project member)	15-18/2/2023
5	Matsumura Takeshi	NICT (Project member)	15-18/2/2023
6	Ho Ngo Anh Dao	ENLABSAFE, TDTU (Project member)	16-17/2/2023
7	Nguyen Thanh Quang	FEEE, TDTU (Project member)	16-17/2/2023
8	Dinh Hoang Bach	INCRETI, TDTU (speaker)	16-17/2/2023
9	Dong Si Thien Chau	FEEE, TDTU (Dean of FEEE)	
10	Tran Thi Phuong Quynh	ENLABSAFE, TDTU (speaker)	16-17/2/2023
11	Mr. Kim DoKyong	KEC, TDTU (speaker) https://kec.tdtu.edu.vn/en	16-17/2/2023
12	Tran Viet Hung	FEEE, TDTU (speaker)	17/2/2023
13	Tu Lam Thanh	FEEE, TDTU (speaker)	17/2/2023
14	Tran Le Luu	VGU, Vietnam (speaker) https://vgu.edu.vn/en/home	17/2/2023
15	Mai Minh Man	Fuvitech company (speaker) https://fuvitech.vn/	17/2/2023
16	Dang My Thanh	ENLABSAFE, TDTU (lecturer)	16-17/2/2023
17	Nguyen T. Thanh Huong	ENLABSAFE, TDTU (lecturer)	16-17/2/2023
18	Nguyen Thuy Vien Minh	ENLABSAFE, TDTU (lecturer)	16-17/2/2023
19	Pham Thi Hong Nga	ENLABSAFE, TDTU (secretary)	16-17/2/2023
20	Ta Hoang Trong	ENLABSAFE, TDTU (secretary)	16-17/2/2023
21	Le Phuc Anh	INCRETI, TDTU (support staff)	16-17/2/2023
22	Vu Tri Vien	FEEE, TDTU (lecturer)	16-17/2/2023
23	Phạm Duy Thanh	FEEE, TDTU (lecturer)	16/2/2023 (afternoon)
24	Ha Duy Hung	FEEE, TDTU (lecturer)	16/2/2023 (afternoon)
25	Huynh Thanh Thien	FEEE, TDTU (lecturer)	16/2/2023 (afternoon)
26	Nguyen Le Minh Tri	AiMAS, TDTU (researcher) https://aimas.tdtu.edu.vn/en/personnel/Research-Groups	17/2/2023
27	Nguyen Le Tri Dang	INCOS, TDTU (researcher) https://incos.tdtu.edu.vn/staff/dr-nguyen-le-tri-dang	17/2/2023
28	Le Duc Phuong	Fuvitech company (Technical Officer) https://fuvitech.vn/	17/2/2023

IV. Summary of the activities corresponding to the objectives

1. Summary of Collaboration discussion meeting

In this section, TDTU representatives welcomed all delegates and express special thanks for the research cooperation. Dr Dinh Hoang Bach introduced and shared with the all team-members from NICT and USM about the research capacity in the field of ICT technology in TDTU campus. Dr Hiroshi EMOTO, from NICT, also introduce about NICT and encourage the application for the membership. TDTU would like to build the international network, especially in term of joined research project.

2. Summary of closed project meeting

The main objective of this meeting is to update the progress of ASEAN IVO 2021 project to all the team members. During the Closed project meeting on Feb 16, the team leader, Assoc. Prof. Leo Choe Peng presented the recent progress from all members. The team members also spent their time to participate in site tour around TDTU campus, including Chemical & Envrionemtal engineering lab, Automatic control LAB và Robotics and industrial communication networks LAB, and IoT system for monitoring of air conditioning system (a part from research output of Dr Dinh Hoang Bach). This helps to increase the effectiveness of knowledge transfer activity.

3. Summary of closed knowledge transfer talk show

The lecturers and students from ENLABSAFE AND FEEE were gathered in 2 parallel sessions to participate in this activity. Specifically, about more than 20 students and 5 lecturers from ENLABSAFE joined in the environmental engineering session with Prof. Leo and Dr. Anh Dao to show the idea of this project and the current results and future plan. Prof Leo also share with them how to promote the scientific research ideas and encourage students to do more reseach activities. On the other hand, NICT team, Dr Yu Kok Hwa and Mr Nguyen Thanh Quang hosted the ICT session to do the mini knowledge transfer seminar with 20 students and 5 lectures from FEEE. Dr Huan-Bang Li presented his topic on D2D technology and shared information about NICT research capacity. Dr Yu Kok Hwa also presented the research results based on this project from USM side to all the audience.

4. Summary of open knowledge transfer workshop

During the Open Workshop on Feb 17, 2023, many researchers and experts related to environmental engineering and ICT technology gathered and shared their experience and research output on these fields.

The opening remarks is done by Dr Dinh Hoang Bach – International Cooperation, Research and Training Institute (INCRETI) – the representative of TDTU. After that 7 speakers from both fields (environmental engineering and ICT technology) presented their topics as described below:

- Topic 1: Application of AnMBR for seafood processing wastewater treatment: Assoc. Prof Tran Le Luu presented his study on the Anaerobic Membrane Bioreactor to treat the wastewater generated from seafood industry. The

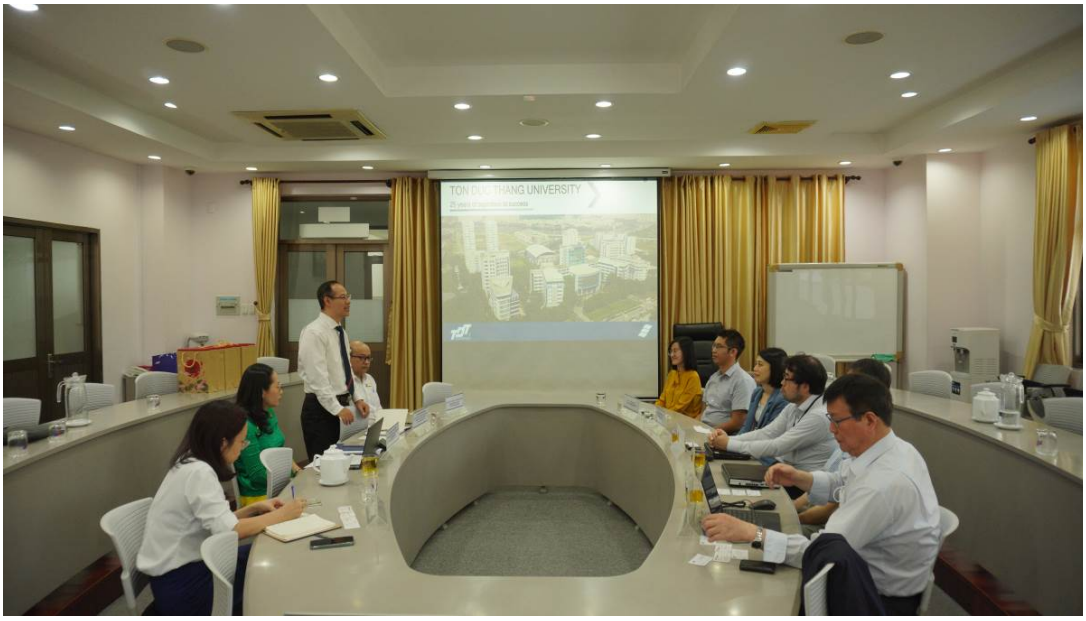
treatment system employed the Ultrafiltration (UF) membrane to produce the good quality wastewater output.

- Topic 2: Application of IoT techniques for measuring & surveying energy consumption of air conditioning system under different environmental conditions. Dr Dinh Hoang Bach presented a part of his study which applied IoT techniques on monitoring the air conditioning system. He also showed
- Topic 3: IoT based smart water quality monitoring system: A case study in Vietnam. Dr Tran Thi Phuong Quynh summarized the application of IoT technology on the management of water supply system in Ho Chi Minh City, which is authorized by the Saigon Water Coporation.
- Topic 4: Environmental monitoring using IoT web based NodeRed. Dr Tran Viet Hung presented the application of IoT web based NodeRed on environemental monitoring based on his research. The research was conducted by his undergraduate research team.
- Topic 5: IoT system for water reuse in Mekong Delta region. Dr Kim DoKyong presented his real model to treat the water for reuse purpose. The Iot system is also designed to monitor the water quality. His research group also brought the IoT system to show at the workshop.
- Topic 6: Water environment monitoring of aquaculture ponds. Mr. Mai Minh Man and Mr. Le Duc Phuong from Fuvitech Co., Ltd showed their services to install the water monitoring system based on IoT techniques.
- Topic 7: Wireless communication for IoT devices. Dr. Tu Lam Thanh present an overview of wireless communication which is employed effectively in IoT system.

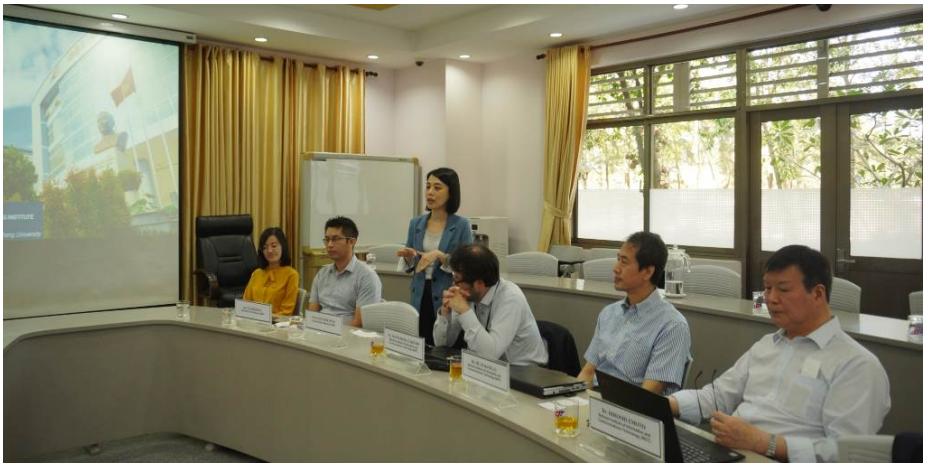
All participants took the opportunity to ask questions, discuss, and build networks. Many young lecturers and researhers from FEEE and ENLABSAFE can learn more from the presentation of speakers and their sharing.

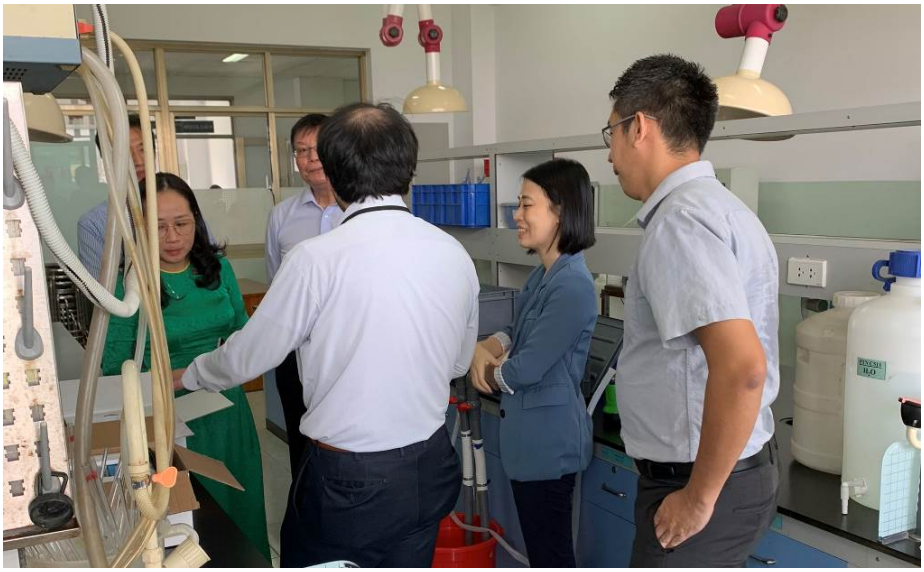
V. Others

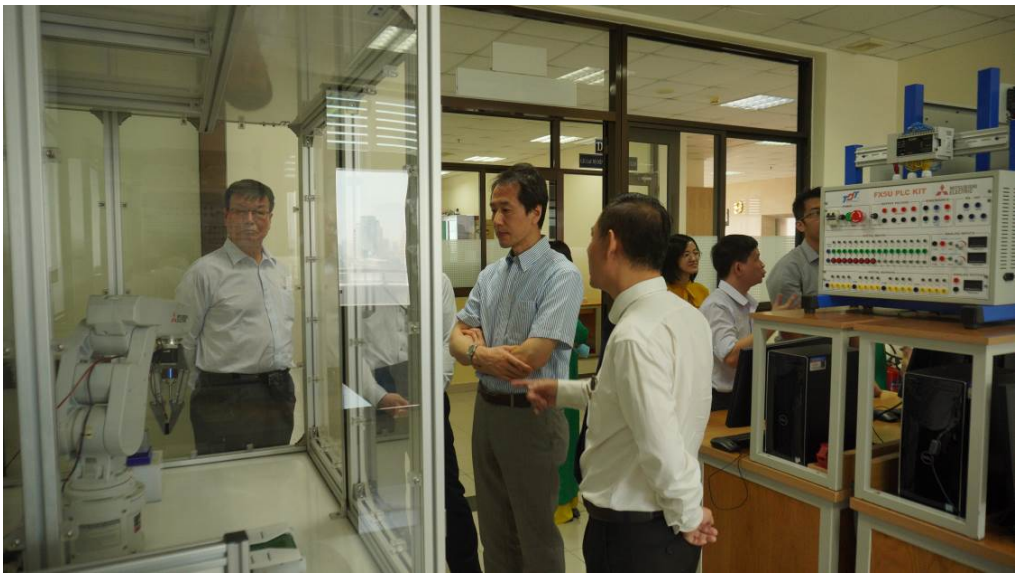
1. Photos of collaboration discussion meeting



2. Photos of closed project meeting and site tour



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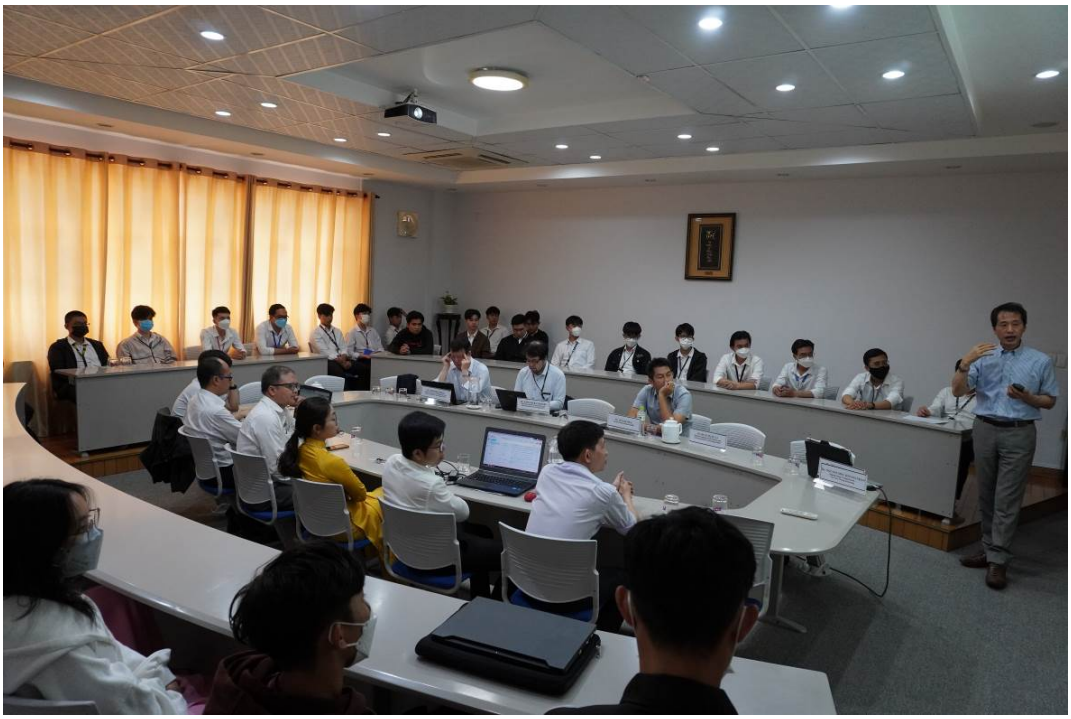
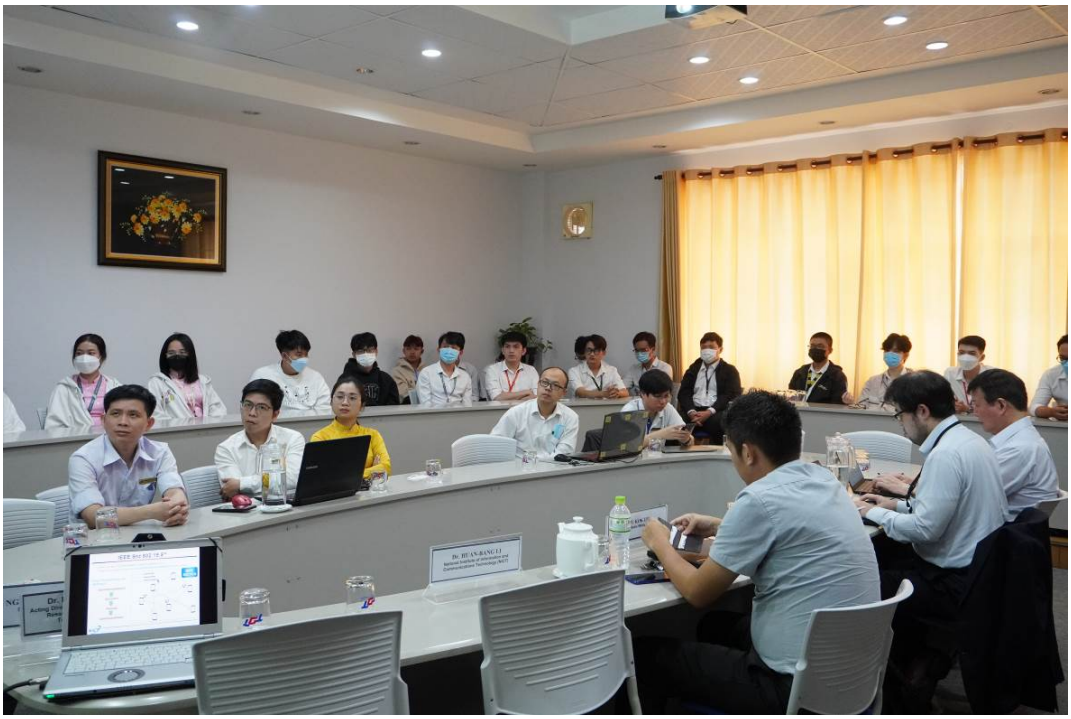
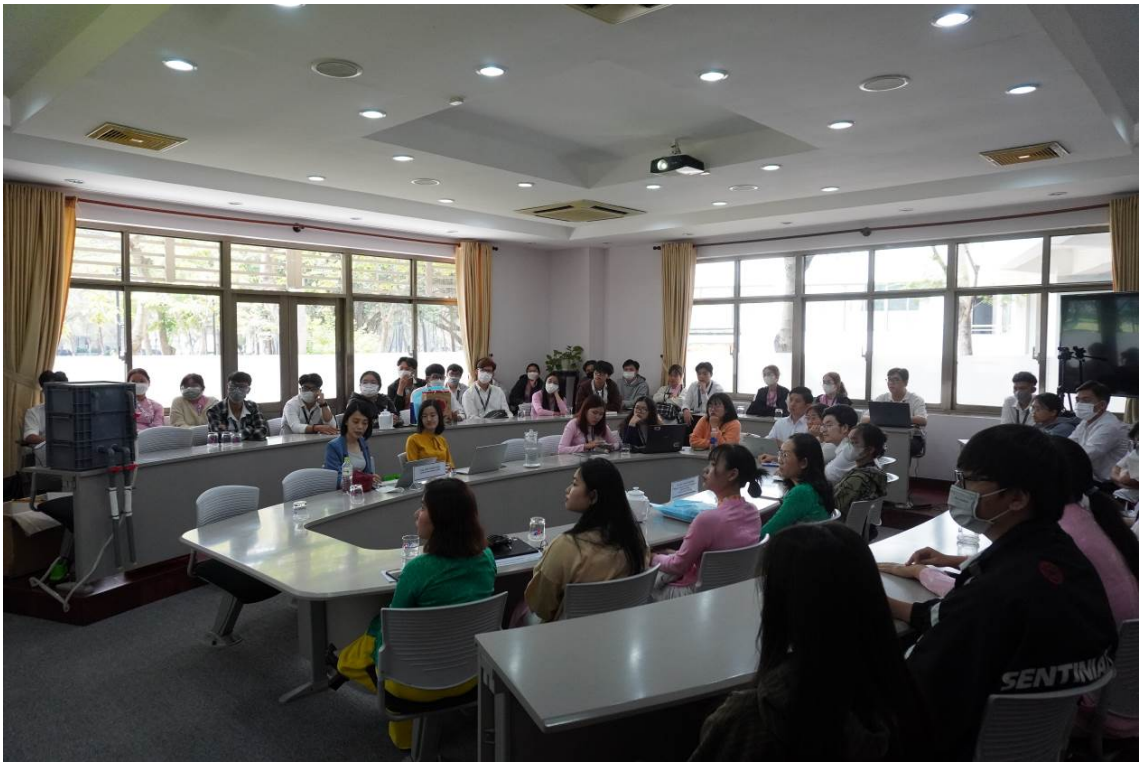
3. Photos of closed knowledge transfer seminar for lecturers and students of TDTU (parallel sessions for FEEE and ENLABSAFE)

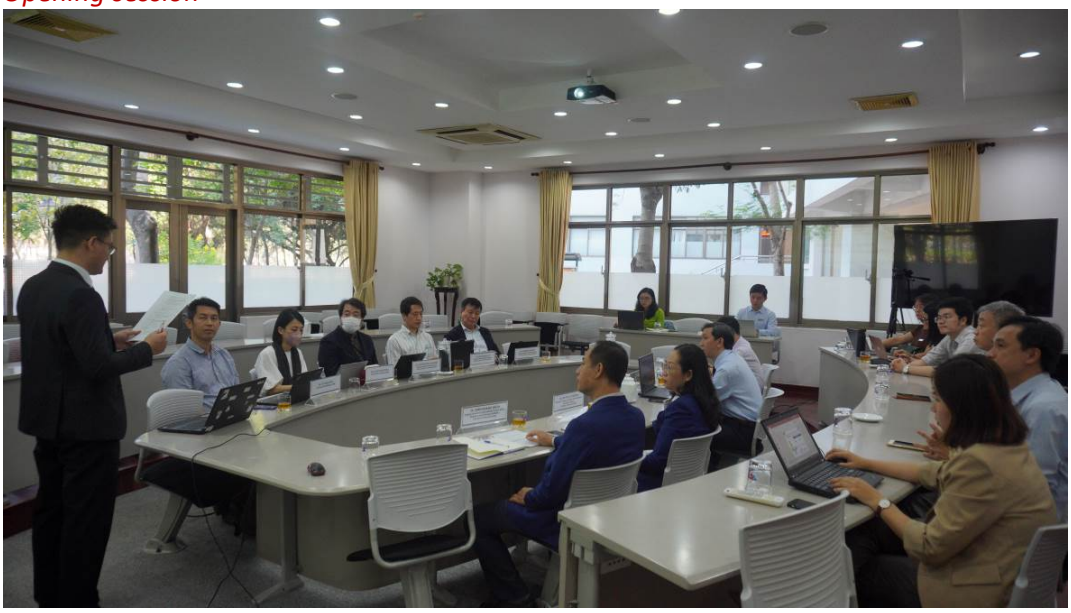




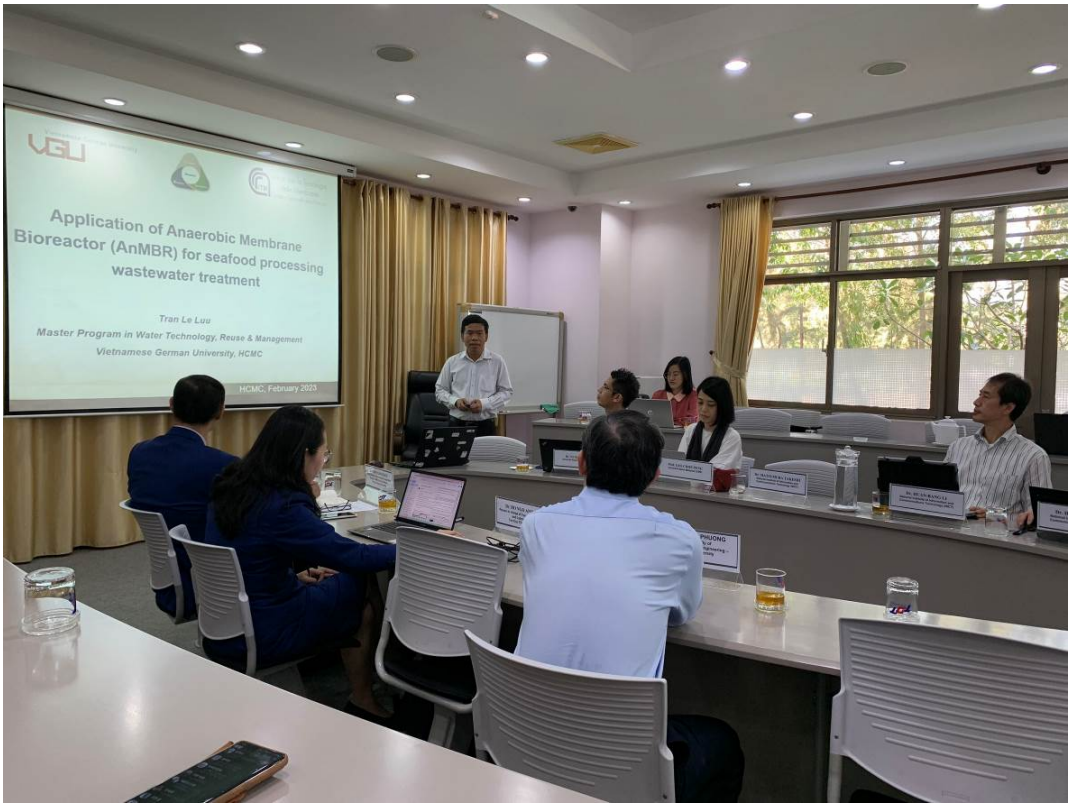


3. *Open workshop*

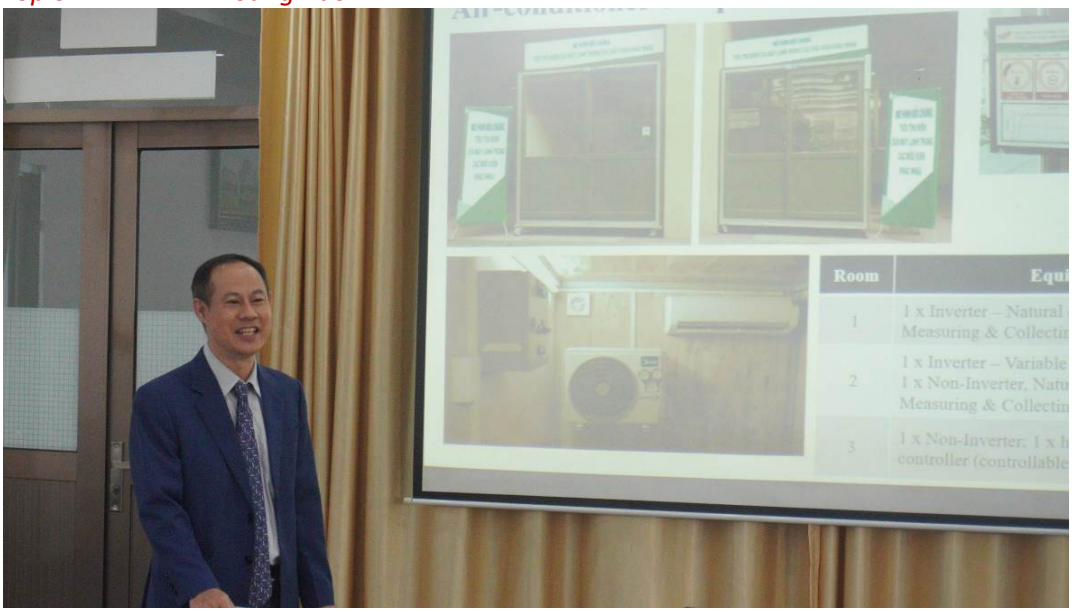
Opening session



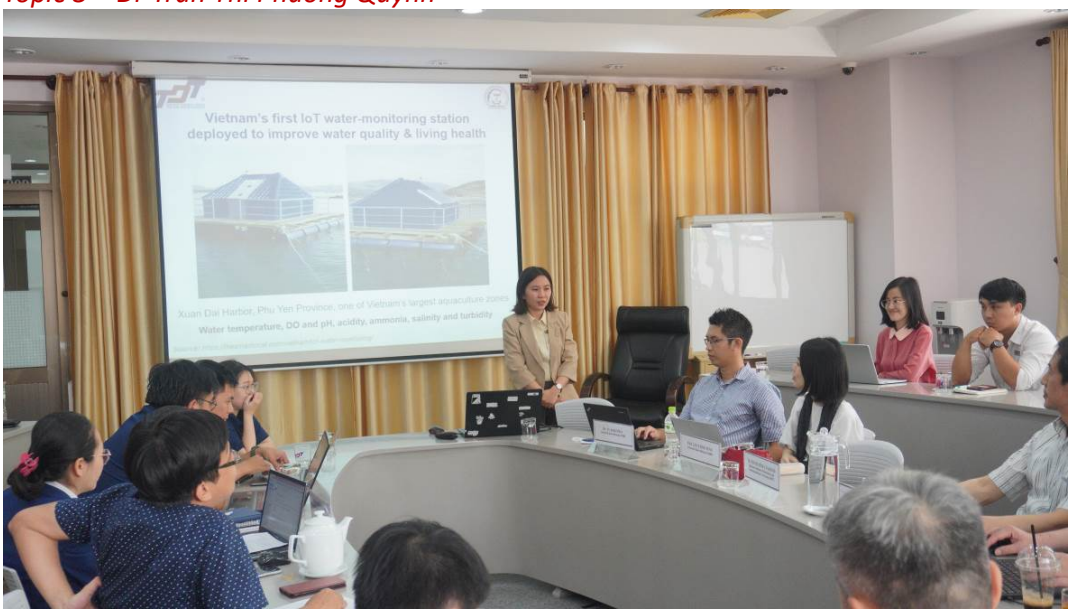
Topic 1 – Assoc. Prof. Tran Le Luu



Topic 2 – Dr Dinh Hoang Bach

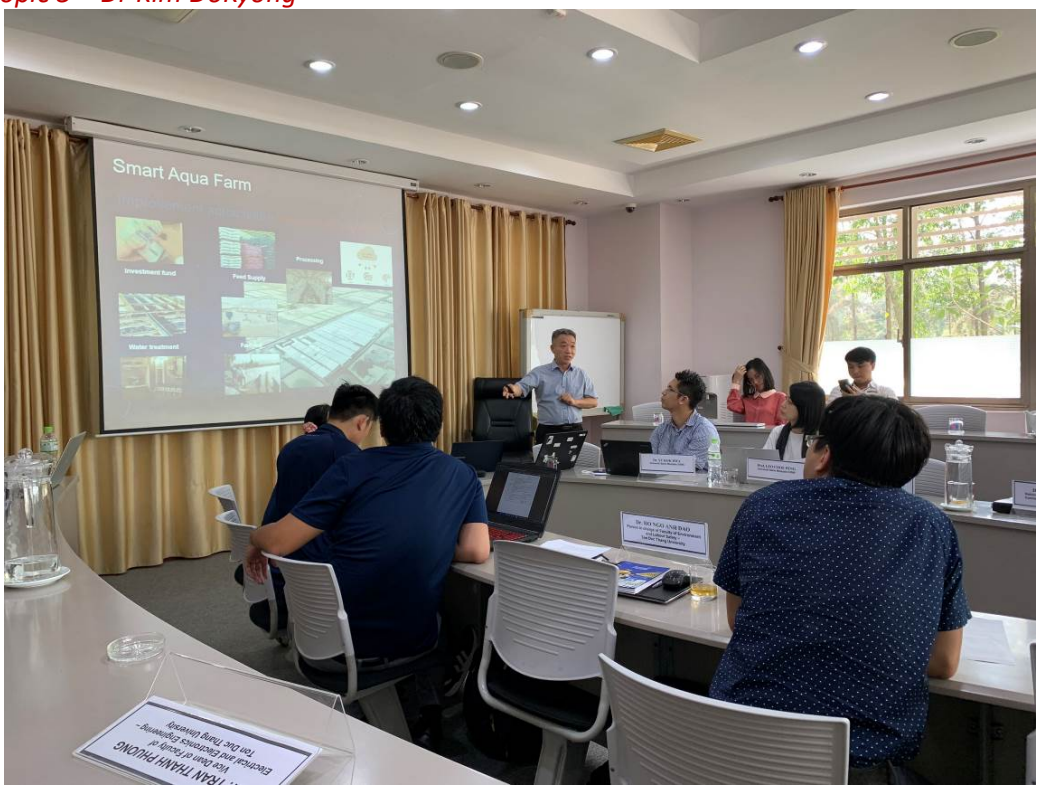


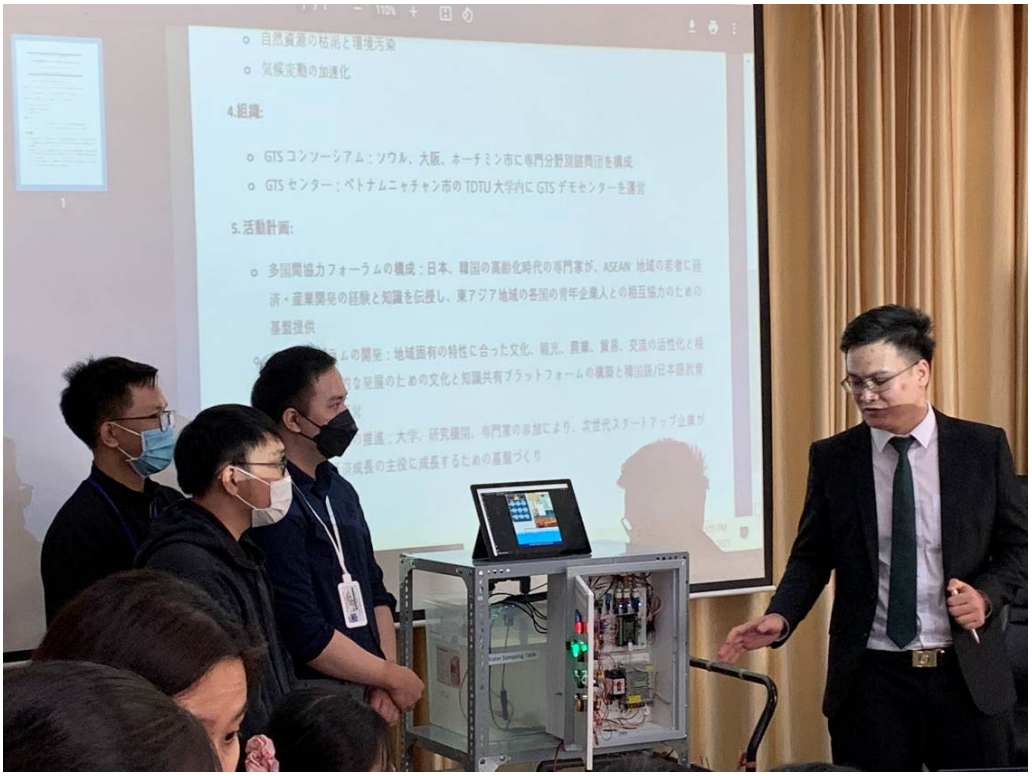
Topic 3 – Dr Tran Thi Phuong Quynh



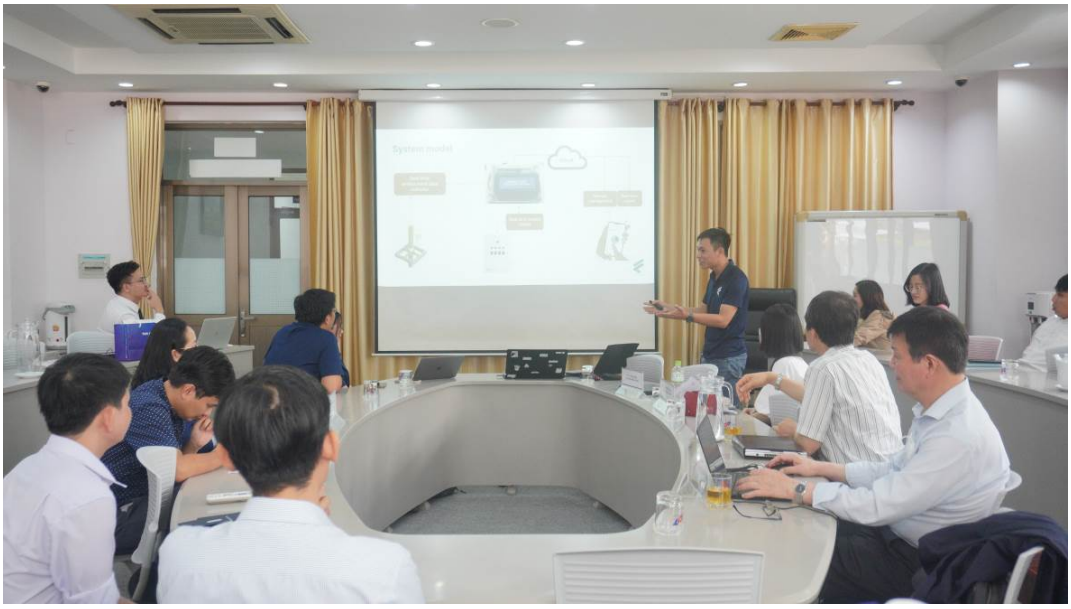
Topic 4 – Dr Tran Viet Hung

Topic 5 – Dr Kim DoKyong



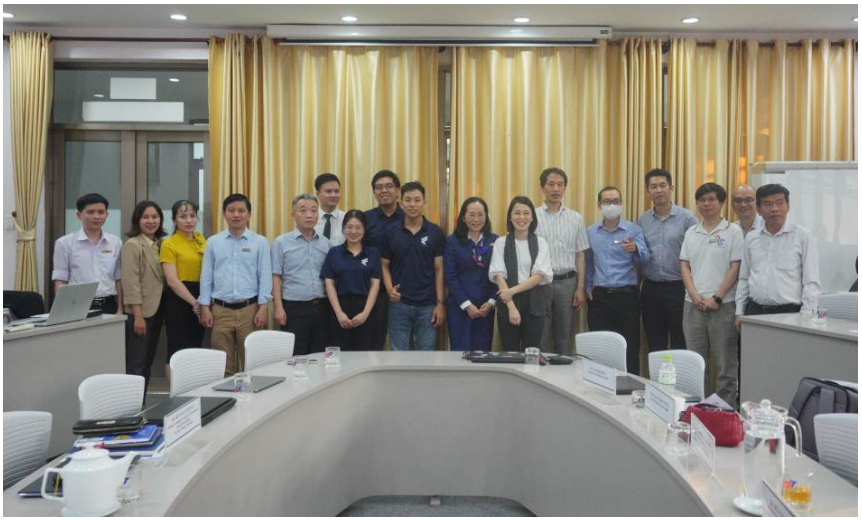


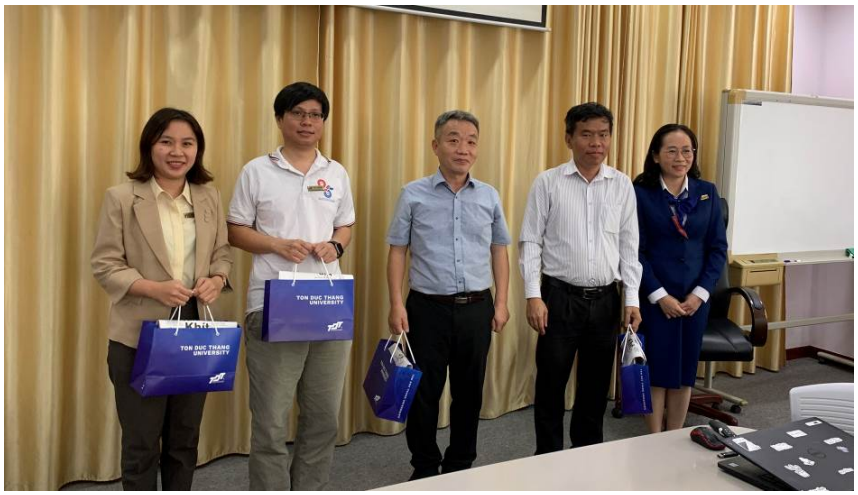
Topic 6 – Fuvitech Co., Ltd

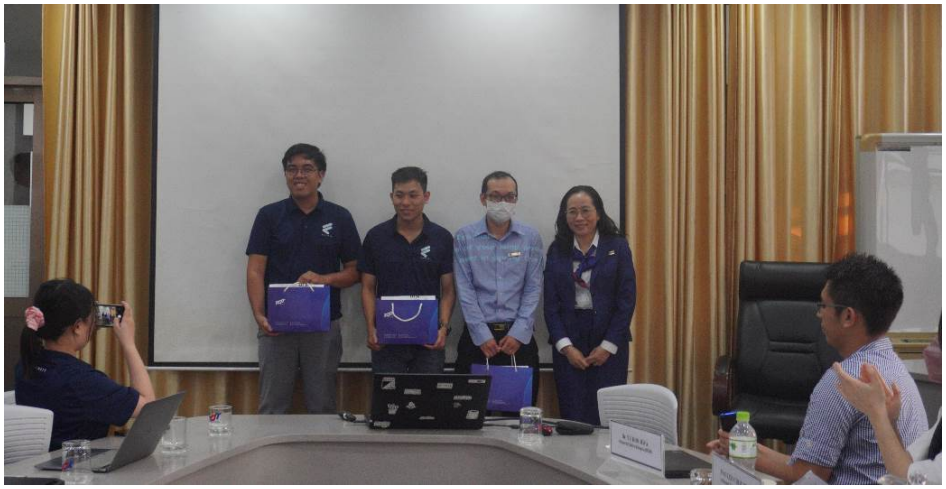


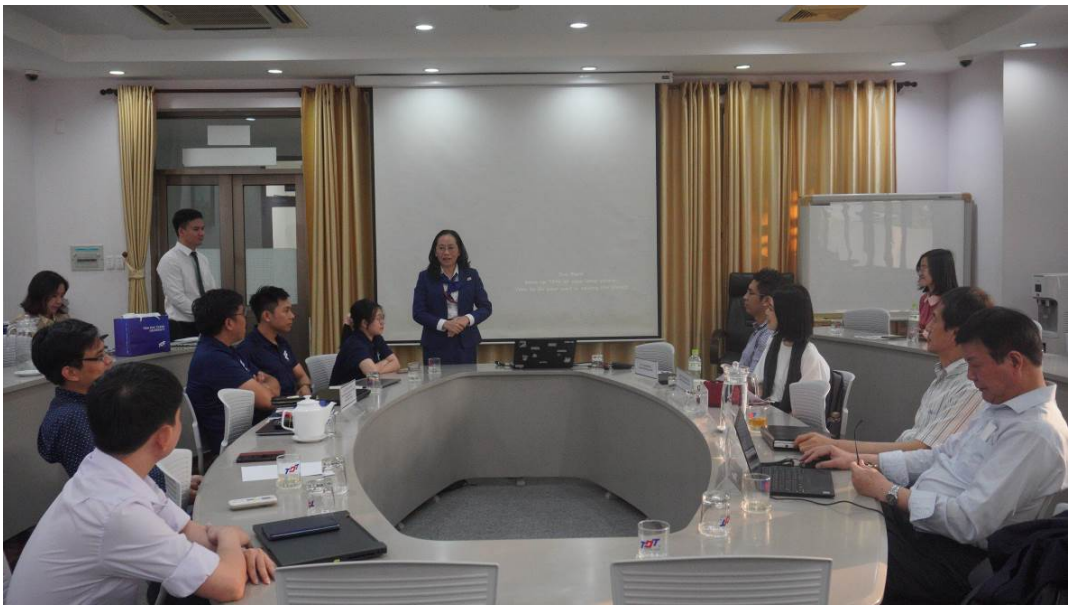
Topic 7 – Dr. Tu Lam Thanh

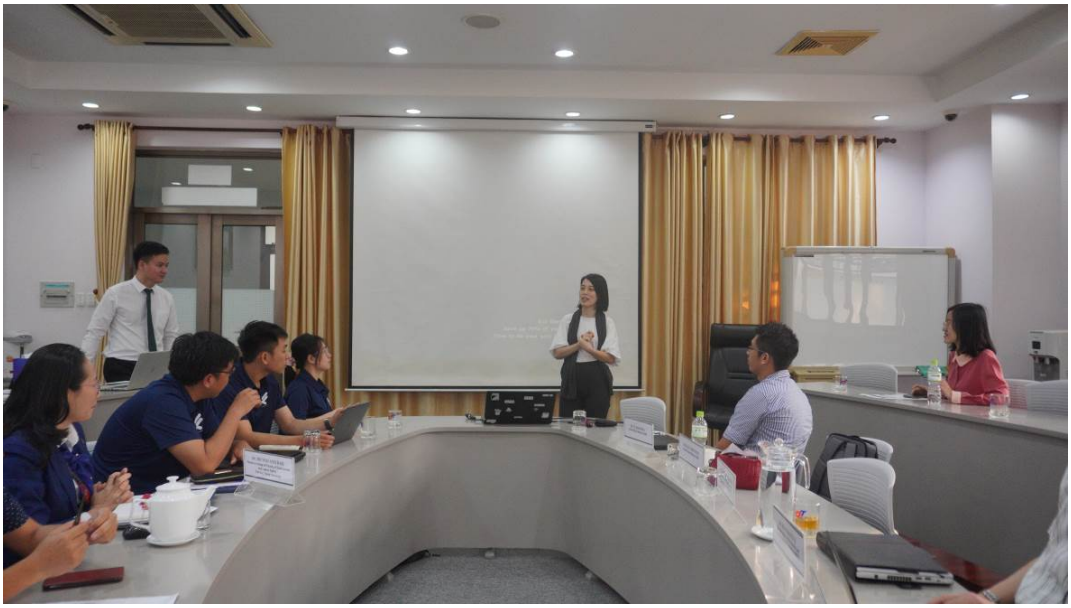
Closing session











Participant feedbacks

The event is designed well for transfer knowledge among experts from different disciplinaries.
The workshop brings opportunity to connect many researchers in the field of environmental engineering and ICT technology
useful information
The workshop is well-organized. I do not have any negative feedback. Please do not put my ID number (in that field I fill N/A) in the certification
The workshop was well organized and shared various interesting topics to audiences. We expect to have more chance for research cooperation or exchange researchers.
Well planned arrangement for the presentations.
I have learned a lot from the Workshop. Thank you very much for giving us an opportunity to exchange knowledge. We hope that there are more opportunities for cooperation in the future.
it is useful for me
Everything is very good
The conference is well prepared. The content in the conference is useful and practical.
i really enjoy the workshop, it brings me a lot of knowledge and know more about the IoT. This workshop also brings me more information about scholar ship that I can inform to my students about them.
Topics on IoT and D2D are very helpful. I can apply it to future projects.
The workshop is useful for implementation of D2D communications.
Usefull IoT information