



# Course Outline

## Annual International Training Course

### 1. Course Title:

Networking and capacity building of biomedical personnel in developing countries for facing emerging and re-emerging infectious diseases

### 2. Duration:

2 weeks (20 May – 31 May 2024)

### 3. Background:

#### **Thailand International Cooperation Agency (TICA)**

TICA is a national focal point for Thailand's international development cooperation. It was established in 2004 to realize Thailand's aspiration to be a contributor to international development cooperation. Believing that global challenges are best addressed through international cooperation and global partnership, TICA continues to work closely together with its development partners to realize the global development agenda through various capacity-building and human resources development programmes. In response to the recent changes in the global landscape of development cooperation, TICA has strengthened its partnerships to harness the synergy of South-South and Triangular Cooperation to tackle global development challenges, including expediting the implementation of Sustainable Development Goals (SDGs). It also continues to realign our focuses in order to deliver Thailand's commitments as a global reliable partner.

Since 1991, TICA, in collaboration with educational institutions in Thailand, has offered short-term training courses under its Annual International Training Course (AITC) programme. The number of courses offered each year varies between 25 to 35 courses for 20-35 participants per course. AITC not only fosters good and friendly relations which Thailand has already enjoyed with recipient countries across regions, but also helps Thailand to reach out to those countries with which we desire

to engage more closely. The courses offered by TICA in 2023-2025 are categorized into 5 themes: Sufficiency Economy Philosophy (SEP), food security, climate change and environmental issues, public health, BCG Model related.

### **Organization/Institution**

Division of Clinical Microbiology, Department of Medical Technology, Faculty of Associated Medical Sciences, Chiang Mai University, Chiang Mai, Thailand.

The Faculty of Associated Medical Sciences (AMS), Chiang Mai University (CMU) mandate is to provide education and service in the fields of Medical Technology, Radiology Technology, Occupational Therapy, and Physical Therapy for the North of Thailand. The Medical Technology department includes 5 divisions: Clinical Microbiology, Clinical Chemistry, Clinical Immunology, Transfusion Sciences, and Clinical Microscopy. The faculty has a wide range of teaching and research activities and offers Bachelors, and International Masters and Doctoral degrees.

AMS is also the home of several leading research units and centers in Biomedical Sciences including the Infectious Diseases Research Unit (IDRU). The IDRU conducts research in the fields of Clinical Virology, Bacteriology, and Mycology by academic staff at the Division of Clinical Microbiology (CMB), Department of Medical Technology. The IDRU focuses on an in-depth study of microbial mechanisms, pathogenesis, and epidemiology. The development of diagnostic assays for the detection and monitoring of important infectious diseases and drug-resistant pathogens is also our interest. To tackle public health problems including emerging/re-emerging infectious diseases (EID/rEID), One Health approach has also been adopted in our research.

During the past decades, the CMB has been responsible for teaching undergraduate/graduate students, conducting research, and providing several national/international training courses for biomedical personnel in Clinical Microbiology. Currently, there are more than 30 staff in the CMB including virologists, bacteriologists, mycologists, and supporting staff. The division laboratory performs a full range of bacteriological, virological, mycological, and immunological testing for communities and patients from the University Hospital and other network hospitals through the Clinical Microbiology Laboratory Service Unit (CMSU). The CMSU provides a variety of general and specialized (HIV, HBV

and HCV quantification and HIV genotypic resistance) laboratory services for outpatient populations and is accredited ISO 15189 and ISO 15190.

The division includes an office area (1,550 square meters), a teaching area (1,000 square meters) and 12 laboratory rooms for research activities. The laboratory also includes a tissue culture room, pre-PCR and post-PCR zones, molecular and serological virology zones. A biosafety level 2 plus (BSL-2 plus) facility is equipped for culture of infectious samples and cells, sample preparation. Broadband Internet is accessible through the CMU network and prompt for long-distance meetings. Conference room facilities and lecture room are available within the faculty.

During the COVID-19 crisis, we set up services for COVID-19 in Chiang Mai and Lamphun provinces. Appointments are made through smartphones, or the internet and individuals have their nasopharyngeal samples collected at drive-thru or mobile units in safe conditions. Test results are provided via smartphone within 24 hours. Currently, over 10,000 individuals have been tested under this service and the system is being transferred to other provinces of Thailand. CMB laboratory service has provided a routine diagnosis of both antimicrobial resistance (AMR) and tuberculosis (TB) for over 20 years. The IDRU research team has been conducting research and developing rapid diagnostic tests for mycobacteria and AMR. We believe that we are able to transfer our knowledge and experiences to the participants. After the completion of this training course, the participants could gain knowledge in the diagnosis, manage and respond to EID/rEID, and establish international collaboration and networking for facing EID/rEID in the future. In addition, we will encourage cultural exchange among participants.

#### **4. Objectives:**

The program is designed to fulfill the knowledge and skills in management and response to EID/rEID. After the participants finish this course, they will be able to:

1. Gain knowledge in the diagnosis of EID/rEID
2. Manage and respond to EID/rEID using multi-disciplinary
3. Establish international collaboration and networking for facing EID/rEID
4. Learn and gain experiences of cultural exchange among participants

## 5. Course Contents:

This program consists of lecture part including the fundamental knowledge and management of EID/rEID, One Health (OH) knowledge, diagnosis of an outbreak of EID/rEID, good laboratory practice, and brainstorming of EID/rEID. The course contents include:

<b>Lecture</b>	<b>hours</b>
1. One Health concept	3.5
2. Fundamental EID/rEID	3.5
3. Covid diagnosis: standard and POCT rapid	7
4. Tuberculosis (TB) diagnosis: standard and rapid	7
5. Antimicrobial resistance (AMR)	7
6. Management of EID	7
7. Response and minimize impact of EID	3.5
8. Result communication of EID/rEID	3.5
9. Surveillance of EID	7
10. Good Lab Practice/ Biosafety in microbiological laboratory	7
11. Brainstorming of EID/rEID	3.5
12. Case presentation on COVID-19, AMR, and TB outbreaks	3.5
13. Networking and team building	3.5
<b>Total</b>	<b><u>66.5</u></b>

## **6. Participants' Criteria:**

Applicants must fulfil the following requirements:

- Be nominated by their respective governments;
- Education: not specified but the participants should be working in these fields or related fields; biomedical personnel, health care workers, agency who responsible for emerging diseases, public health personnel
- Language: adequate skills (speaking, reading and writing) in English

## **7. Attendance and Evaluation**

Participants who complete the training will receive a certificate based on:

- Real-time class attendance (not less than 80%)
- Interactive class participation
- Presentation and evaluation

## **8. Venue:**

Online via zoom meeting program with Thailand time zone (GMT+7.00).

## **9. Expected Results:**

1. Participants who complete this training course will have the knowledge in diagnosis of EID and rEID
2. Participants who complete this training course will have skills in management and response to EID and rEID.
3. International collaboration and networking for facing EID and rEID will be established.
4. Learning and exchanging tradition and cultural diversity among participants and also learning Thai culture.

## **10. Organization/ Institution:**

- Implementing Agency: Division of Clinical Microbiology (CMB), Department of Medical Technology, Faculty of Associated Medical Sciences, Chiang Mai University, Chiang Mai, Thailand.

**Contact Person:** Asst.Prof. Kanya Preechasuth, Ph.D. (Head of Division)

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**11. Expenditure/Funding:**

Thailand International Cooperation Agency (TICA)

Government Complex, Building B (South Zone), 8th Floor,

Chaengwattana Rd. Laksi District, Bangkok 10210 THAILAND

Website: <https://tica-thaigov.mfa.go.th/en/index>

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## Schedule for the Training Programme:

“Networking and capacity building of biomedical personnel  
in developing countries for facing  
emerging and re-emerging infectious diseases”

<b>Date</b>	<b>Time</b> (GMT+07.00)	<b>Content</b>	<b>Speaker*</b>	<b>Note</b>
20-5-2024	09.00-09.30	Opening ceremony	CMU representative	
	09.30-10.30	Introduction of CMU, AMS CMU, and Division of Clinical Microbiology, AMS CMU	AMS, CMU representative	
	10.30-11.00	Overview the course outline	AMS, CMU representative	
	11.00-12.00	Pretest (background knowledge about emerging disease)	AMS, CMU Staff	
	13.00-16.30	One Health concept	PL	Lecture
21-5-2024	08.30-12.00	Good Lab Practice/ Biosafety in microbiological laboratory I	CMB Staff	Lecture
	13.00-16.30	Good Lab Practice/ Biosafety in microbiological laboratory II	CMB Staff	Lecture
22-5-2024	08.30-12.00	Fundamental EID/rEID	SI, BB	Lecture
	13.00-16.30	Covid diagnosis: standard and POCT rapid I	WK	Lecture
23-5-2024	08.30-12.00	Covid diagnosis: standard and POCT rapid II	WK	Lecture
	13.00-16.30	Management of EID I	WK, NK	Lecture
24-5-2024	08.30-12.00	Management of EID II	WK, NK	Lecture
	13.00-16.30	Response and minimize impact of EID I	WK, CsT	Lecture

<b>Date</b>	<b>Time</b> (GMT+07.00)	<b>Content</b>	<b>Speaker*</b>	<b>Note</b>
27-5-2024	08.30-12.00	Result communication of EID/rEID	WK, UW	Lecture
	13.00-16.30	Surveillance of EID I	KT, NK, KP, CsT, PP	Lecture
28-5-2024	08.30-12.00	Surveillance of EID II	KT, NK, KP, CsT, PP	Lecture
	13.00-16.30	Antimicrobial resistance (AMR) I	UW	Lecture
29-5-2024	08.30-12.00	Antimicrobial resistance (AMR) II	PL	Lecture
	13.00-16.30	Tuberculosis (TB) diagnosis: standard and rapid I	PP	Lecture
30-5-2024	08.30-12.00	Tuberculosis (TB) diagnosis: standard and rapid II	CsT	Lecture
	13.00-16.30	Working group: Case discussion on COVID-19, AMR, and TB outbreaks Brainstorm in facing for future EID/rEID	CMB Staff	Discussion
31-5-2024	08.30-12.00	Case presentation	CMB Staff	Presentation
	13.00-16.30	Case presentation Networking and team building Closing ceremony	CMB Staff	Presentation

\* SI: Assoc. Prof. Sorasak Intorasoot  
 PL: Asst. Prof. Praphan Luangsook  
 PP: Asst. Prof. Ponrut Phunpae  
 KT: Asst. Prof. Khajornsak Tragoolpua  
 NK: Asst. Prof. Natedao Kongyai  
 BB: Asst. Prof. Bordin Butr-indr  
 KP: Asst. Prof. Kanya Preechasuth  
 UW: Asst. Prof. Usanee Wattananandkul  
 WK: Asst. Prof. Wootichai Khumdaung  
 CsT: Asst. Prof. Chayada Sitthidet Tharinjaroen  
 CMB: Clinical microbiology