

**Master of Science Program in Occupational Health and Toxicology  
(International Program/Revised Program Academic Year 2024)  
(Multidisciplinary Program)**

**Name of Institution:** Mahidol University

**Campus/Faculty/Department:** Faculty of Medicine Ramathibodi Hospital  
Department of Community Medicine

### Section 1 General Information

**1. Curriculum Name:**

**Thai :** หลักสูตรวิทยาศาสตรมหาบัณฑิต สาขาวิชาอาชีวอนามัยและพิษวิทยา  
(หลักสูตรนานาชาติ) (หลักสูตรสหวิทยาการ)

**English :** Master of Science Program in Occupational Health and Toxicology  
(International Program) (Multidisciplinary Program)

**2. Name of Degree and Major:**

**Thai:** Full name: วิทยาศาสตรมหาบัณฑิต (อาชีวอนามัยและพิษวิทยา)  
Abbreviation: วท.ม. (อาชีวอนามัยและพิษวิทยา)

**English:** Full name: Master of Science (Occupational Health and Toxicology)  
Abbreviation: M.Sc. (Occupational Health and Toxicology)

**3. Major Subjects:** None

**4. Required Credits:** not less than 36 credits

**5. Curriculum Characteristics**

5.1 Curriculum type/model: Master's degree

5.2 Language: English

5.3 Recruitment: Thai and International students

5.4 Collaboration with Other Universities: This program is MU Program

5.5 Graduate Degrees Offered to the Graduates: One degree

**6. Curriculum Status and Curriculum Approval**

6.1 Revised program in 2024.

6.2 Starting in semester: Semester 1, academic year 2024 onwards

6.3 Curriculum committee approved the program in its meeting.7/2023  
on May 19, 2023.....

6.4 The Mahidol University Council approved the program in its meeting.596.....  
on September 20, 2023.....

## 7. Readiness to Implement/Promote the Curriculum

The curriculum from the program is readily implemented and promoted its quality and standard to criteria set by Thai Qualification Framework for Higher Education in academic year 2025 (one year after implementation)

## 8. Career Opportunities of the Graduates

- 8.1 Knowledge transfer personnel in occupational health and toxicology
- 8.2 Person in charge of industrial hygiene and occupational safety
- 8.3 Governmental occupational health officer
- 8.4 Researcher in occupational health and toxicology

## 9. Name, ID Number, Title and Degree of the Faculty in Charge of the Program

No.	Identification Card Number Academic position - Name – Surname	Degree (Field of Study) University: Year of graduate	Department
1.	x-xxxx-xxxxx-xx-x Associate Professor Satariya Trakulsrichai	Diploma of the Thai Board of Clinical Pharmacology and Toxicology, The Medical Council of Thailand: 2012 Certification of Academic Fellowship of Emergency Medicine University of Florida, USA: 2006 Diploma of the Thai Board of Emergency Medicine, The Medical Council of Thailand: 2004 Diploma of the Thai Board of Internal Medicine, The Medical	Department of Emergency Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

No.	Identification Card Number Academic position - Name – Surname	Degree (Field of Study) University: Year of graduate	Department
		Council of Thailand: 1997 M.D., Mahidol University, Thailand: 1991	
2.	x-xxxx-xxxxx-xx-x Assistant Professor Chathaya Wongrathanandha	Diploma of the Thai Board of Preventive Medicine, Occupational Medicine, The Medical Council of Thailand: 2021 M.P.H. (Occupational and Environmental Health), Harvard University, USA: 2013 M.Sc. (Health Economics and Health Care Management) Chulalongkorn University : 2012 Diploma of the Thai Board of Family Medicine, The Medical Council of Thailand: 2004 M.D. (Second class honors), Chulalongkorn University: 2001	Department of Community Medicine, Faculty of medicine Ramathibodi Hospital, Mahidol University
3.	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Doungrutai Buadoung	Ph.D. (Enviromental Science) Chulalongkorn University: 2009. M.Sc. (Enviromental Science) Chulalongkorn University: 1999. B.N.S. (Nursing Science), Mahidol University: 1994.	School of Nursing Ramathibidi Hospital, Faculty of Medicine Ramathibidi Hospital, Mahidol University
4.	x-xxxx-xxxxx-xx-x Assistant Professor Sahaphume Srisuma	Certificate of Achievement Knowledge for Successful Completion of Fellowship Training in Medical Toxicology,	Department of Medicine, Faculty of medicine Ramathibodi

No.	Identification Card Number Academic position - Name – Surname	Degree (Field of Study) University: Year of graduate	Department
		Rocky Mountain Poison and Drug Center, USA: 2015 Diploma of the Thai Board of Medicine, The Medical Council of Thailand: 2012 M.D., Mahidol University, Thailand: 2008	Hospital, Mahidol University
5.	x-xxxx-xxxxx-xx-x Lecturer Dr. Jakris Eu- ahsunthornwattana	Ph.D. (Statistical Genetics), Newcastle University, UK: 2015 M.Sc. (Epidemiology: Principles and Practice), University of London, UK: 2005 M.D. (First class honours), Mahidol University, Thailand : 1999	Department of Community Medicine, Faculty of medicine Ramathibodi Hospital, Mahidol University
6.	x-xxxx-xxxxx-xx-x Lecturer Warisa Soonthornvinit	Diploma of the Thai Board of Preventive Medicine, Occupational Medicine, The Medical Council of Thailand: 2018 B.Sc.,Occupational Health Safety, Sukhothai Thammathirat University : 2021 M.Sc. (Occupational Medicine) Khon Kaen University : 2018 M.D., Khon Kaen University, Thailand: 2014	Department of Community Medicine, Faculty of medicine Ramathibodi Hospital, Mahidol University

#### 10. Venue for Instruction:

Department of Community Medicine, Faculty of Medicine Ramathibodi Hospital,  
Mahidol University

## **11. External Factors to Be Considered in Curriculum Planning**

### **11.1 Economic Situation/Development**

Nowadays, Thailand has development industrial policy formulated by the government to move the country into a new era defined by innovative technology-based manufacturing and services. The industrial sector plays an increasingly important role in the economic growth owing to the sector's rapid expansion from increased foreign investment. This resulted in the creation many new industries, along with the increase in demand for chemicals and hazardous substances both for industrial and agricultural productivity. The use of a large number of chemicals and the lack of effective control and management have impacted on the public health and environment, increasing the amount of pollution in the environment e.g. waste water, hazardous electronic waste, infected garbage. Moreover, there are many reports about misadventures such as chemical leakage following accidents and disaster, big garbage fire, leaked crude oil into the sea, gas leakage and explosion in factory.

Nowadays, the digital economy has transformed and disrupted labour markets and business sectors by changing the nature, organisation and conditions of work. It causes the greatest decrease of the occupations those are primarily low-skilled workers. In addition, the country has been dealing with challenges relating to COVID-19 that have the most impact on informal sector workers including freelancers, online platform workers, self-employed, on-call workers, and other temporary contractual workers due to their lack of income security and exclusion from comprehensive social protection measures.

### **11.2 Social and Cultural Situation/ Development**

Owing to the above mentioned economic development, illnesses from workplace and exposure to environmental pollutants are significant national problems in Thailand. Thai Health Promotion Foundation (ThaiHealth) reported that Thailand has a labor population of over 42.6 million or accounted for 67.4 percent of the total population. The number of people suffering from occupational diseases in 2011 was approximately 2,400 cases with tendency to increase in number each year (Epidemiology Office, Ministry of Public Health, 2011). This number does not include chemical accidents involving the leakage of dangerous chemicals in short time. These expose a large number of workers to the hazard substances, immediately leading to severe illness. Moreover, people living around the factory are also exposed to the dangerous chemicals. This can result in acute poisoning or subsequent chronic toxicity. Currently,

Thailand's workers have also many health problems. The health promotion and prevention of work-related diseases in Thailand has a large room for improvement. Informal labors, who are the majority of all workers, do not have access to the health care service. In addition, the lack of health impact assessment in an industrial section before, during and after operation may put people at high risk from pollutions from those industries. There are emerging trends and challenges in occupational health including changes on work organization, such as the transition of stable long-term employment to contract/part-time employment; change on demographics of aging workforce; globalization; climate change; decline in unionized workforce; and new technologies eg. robotic, artificial intelligence, internet of things and metaverse.

The government and Ministry of Labour, have implemented the "Safety Thailand" policy for enhancement of safety measures nationwide, particularly in the workplace, on roads, construction sites and in agriculture. The Ministry of Labour has given great importance to workplace safety and health of the workforce whereby driving legislation and promoting development of health and safety systems in the workplace. This policy would reduce the risk of such losses from occupational hazards and would help the government financially in terms of compensation payments. The bill of the development of a quality of life and protection of informal workers has also been promoted. One of the five goals of the proposed 13<sup>th</sup> five-year National Economic and Social Development Plan for the country's transformation from 2023 to 2027 is to invest in human resources in order to keep up with the rapid pace of digital development.

## **12. The Effects Mentioned in No.11.1 and 11.2 on Curriculum Development and Relevance to the Missions of the University/Institution**

### **12.1 Curriculum Development**

Owing to the impact on topics 11.1 and 11.2, Faculty of Medicine Ramathibodi Hospital Mahidol University has developed the Master of Science program in Occupational Health and Toxicology (International Program). The content will be the integration of knowledge from the fields of occupational medicine, occupational health, toxicology, epidemiology, Industrial hygiene and safety in a multidisciplinary manner and engagement with a network of stakeholders. The curriculum will involve towards a holistic approach to preventive and promotive-oriented model for worker health. Graduates will be able to apply this integrated knowledge to proactively solve the problems. They can assess the disease or illness from work, carry out surveillance of

toxic substances, and choose appropriate biological indicators to help achieving accurate diagnosis and effective treatment of the disease. Research can be done to create new knowledge and solve new problems in real situations.

### **12.2 Relevance to the Missions of the University/Institution**

The Occupational Health and Toxicology program encourages the university's mission by emphasizing in the field of health excellence and innovation with integrity for the betterment of Thai society and the benefit of mankind. Through the educational mission of our faculty, the program will provide the health science graduates to comply the need for a national health policy to solve health and safety problems of workers. This program is also aligned with the research and health promotion missions of faculty by preparing the students' knowledge about occupational health and toxicology. Knowledge can be applied to choose the right biomarkers of exposure, sensitivity indicators, biomarkers of effect, and biomarker of susceptibility. This leads to the creation of a protection system, pre-disease surveillance, and effective and precise management the laboratory. It has benefits to employee's health. The health care system can be established in the area of occupational health and toxicology. Research will be produced, and knowledge transferred to target groups both at national and international level e.g. medical and health government agencies and private enterprises.

## **13. Cooperation with Other Curricula of the University:**

### **13.1 Course(s) offered by other faculties/ departments/programs: 6 courses**

RACE : Mahidol University, faculty of Medicine Ramathibodi Hospital, Department of Clonical Epidemiology and Biostatistics.

SCTX : Mahidol University, Faculty of Science.

- |  |          |
|--|----------|
| 1. RACE 607 Clinical Economics                                 | 3(3-0-6) |
| 2. RACE 618 Systematic Review and Meta-Analysis                | 3(2-2-5) |
| 3. RACE 624 Research Informatics and Data Management           | 2(2-0-4) |
| 4. RACE 625 Medical statistics for clinical Research           | 3(2-2-5) |
| 5. RACE 626 Advanced Statistical Analysis in Clinical Research | 3(2-2-5) |
| 6. SCTX 633 Clinical Toxicology                                | 2(2-0-4) |

### **13.2 Course(s) offered to other programs: none**

### **13.3 Coordination**

13.3.1 Appoint lecturers who are responsible for this course. They will coordinate with the other department and lecturer teams to consider the course objectives, schedule and evaluation.

13.3.2 Consult with the team of lecturers for preparing the content concordance with the course objectives and course description.

13.3.3 Conference about teaching plan, assessment, evaluation and grading.

## **Section 2 Information of the Curriculum**

### **1. Philosophy, Justification, and Objectives of the Curriculum**

#### **1.1 Philosophy and Justification of the Curriculum**

The curriculum is a multidisciplinary curriculum which integrated the areas of occupational health, toxicology, medicine, genetics, epidemiology, industrial hygiene and safety, and the environment. Objectives of the course are to produce Master degree graduates who have the ability to apply the concept and theory of occupational health and toxicology to solve problems, integrate with health care, conduct research, analyze data and be leaders in advanced academic and work ethics. The learning-centered education, outcome-based education, and constructivism are applied as the curriculum design processes that result in learning activities where students are able to gain academic achievement.

#### **1.2 Objectives of the Program**

After graduation from this program, graduates achieve the qualifications in accordance with the qualification standard for higher education as follows

1.2.1 Apply knowledge, concept and theory related to occupational health and toxicology, and engage self-directed learning

1.2.2 Analyze and formulate solution to the health problems related to occupational health and toxicology using evidence-based practice; appraise research works; design and conduct occupational health research using appropriate and ethical processes

1.2.3 Adhere to moral standards, academic and professional ethics.

1.2.4 Demonstrate self responsibility, cooperate effectively with others and exercise leadership skills where appropriate and use of information technology for self-study, presentation and effective communication to all target audiences.

#### **1.3 Program Learning Outcomes (PLOs)**

The PLOs was established to accompany with the vision and mission of the faculty of Medicine Ramathibodi Hospital and Mahidol University. The vision and mission of the faculty of Medicine Ramathibodi Hospital and Mahidol University expected the



world class university, excellence in health sciences, and a leader in national health advocacy. By the time of graduation, the students of the program will have the ability to:

1.3.1 Integrate principles and theories related to occupational health and toxicology into reality and practices and seek a way to improve knowledge continually and regularly.

1.3.2 Perform health risk assessment in diverse occupational situations using statistical analysis, critical thinking, and evidence-based practices as well as conduct relevant occupational health research.

1.3.3 Demonstrate moral and ethical values in occupational health and toxicology practice and research.

1.3.4 Demonstrate good communication skills and use information technology skills as well as leadership and teamwork in occupational health multidisciplinary team.

## 2 Plan for Development and Improvement

Plan for Development/Revision	Strategies	Evidences/ Indexes
1. Revise curriculum to meet the office of Higher Education Commissions' standards and international standard	<ul style="list-style-type: none"> <li>- Revise curriculum every five years.</li> <li>- Monitor and evaluate the implementation of curriculum: Satisfaction of stakeholders such as employers, entrepreneurs, Master graduates and students.</li> <li>- Analyze and correct the weakness.</li> </ul>	<ul style="list-style-type: none"> <li>- The satisfaction survey reports from stakeholders 1/year</li> <li>- Annual report of the curriculum implementation (TQF7) 1/year</li> <li>- Report of Internal Quality Audit (IQA), once a year</li> </ul>
2. Improve teaching management and strategies based on the appraisal performance	<ul style="list-style-type: none"> <li>- The annual curriculum meeting that is participated by instructors, course directors, support</li> </ul>	<ul style="list-style-type: none"> <li>- Annual report of the curriculum meeting.</li> </ul>

Plan for Development/Revision	Strategies	Evidences/ Indexes
report in each year.	staffs, Master graduates and students.	
3. Encourage staffs to develop their academic skills at least once a year.	<ul style="list-style-type: none"> <li>- Encourage personnel to attend academic training sessions, seminars</li> <li>- Encourage personnel to conduct research or academic service to external agencies.</li> </ul>	<ul style="list-style-type: none"> <li>- Certificate of attendance of training, seminar or conference</li> <li>- Research publications and academic services</li> </ul>

### Section 3 Educational Management System, Curriculum Implementation and Structure

#### 1. Educational Management System

**1.1 System:** Two Semester Credit system. 1 Academic Year consists of 2 Regular Semesters, each with not less than 15 weeks of study

**1.2 Summer Session:** None

**1.3 Credit Equivalence to Semester System:** None

#### 2. Curriculum Implementation

##### 2.1 Teaching Schedule:

- Weekdays from Monday to Friday (08:00 A.M. – 4:00 P.M.);
- Semester 1 August – December
- Semester 2 January - May

##### 2.2 Qualifications of Prospective Students

###### Plan 1.2 Academic (Coursework and Research)

- 2.2.1 Holding a Bachelor's degrees or equivalent in Health Science program or other related fields.
- 2.2.2 Other requirements shall follow those that specified by the Faculty of Graduate Studies

2.2.3 Qualifications different from 2.2.2 may be considered by the Program Administrative Committee and the Dean of the Faculty of Graduate Studies.

### 2.3 Problems of Encountered by New Students

The teaching and learning of this course is based on the integration of knowledge from multiple disciplines; however, the students from different health sciences program are enrolled and may have the different background of knowledge. Students do not meet the required competency standards of English language for Master's degrees of the Faculty of Graduate Studies, Mahidol University.

### 2.4 Strategies for Problem Solving/Limited Requirement in No.2.3

Problems of New Students	Strategies for Problem Solving
1. Students have the different background of knowledge	1. Providing students with handouts, textbook chapters they can review, online tutorials or other complementary materials. 2. Appointing the advisors to students 3. Organizing of the courses in an integrated performance to help the students process, link and apply knowledge in real situation
2. Students do not meet the required competency standards of English language for Master's degrees of the Faculty of Graduate Studies, Mahidol University.	Advice students to take English course(s) in accordance with the Announcement of Faculty of Graduate Studies, Mahidol University B.E.2559. English language tests or experience NOT proscribed in the Announcement may be admissible subjected to the discretion of the Dean of the Faculty of Graduate Studies, Mahidol University.

## 2.5 Five-Year-Plan for Recruitment and Graduation of Students

Academic Year	2024	2025	2026	2027	2028
1 <sup>st</sup>	5	5	5	5	5
2 <sup>nd</sup>	-	5	5	5	5
Cumulative numbers	5	10	10	10	10
Expected number of students graduated	-	5	5	5	5

## 2.6 Budget based on the plan

Budget: The budget is from students' fees Faculty of Medicine Ramathibodi Hospital, Mahidol University.

### Estimated income per student

Registration fee	
Tuition (24 Credits)	xxx,xxx
Thesis	xx,xxx
Work-site study fee	xx,xxx
Internship fee	xx,xxx
Thesis research fee	xxx,xxx
<b>Total income per student</b>	<b>xxx,xxx</b>

### Estimated expenses

Variable expenses per student	
College/university allocation	xx,xxx
Position allowance of thesis advisor and committee	xx,xxx
Thesis research fee	xxx,xxx
<b>Total variable expenses per student</b>	<b>xxx,xxx</b>

### Fixed expenses

Program director payment	xx,xxx
Program secretary payment	xx,xxx
Teaching payment (24 Crs. X 15 hrs. X 1,000 Baht)	xxx,xxx
Utility fee	xx,xxx
Material fee	xx,xxx
Equipment fee	xx,xxx
<b>Total Fixed expenses</b>	<b>xxx,๗๗๗</b>
Number of students at break-even point	2 persons
Cost of students at break-even point	1,161,600 Baht
Expenses per student per academic year	387,200 Baht

## 2.7 Educational System: Classroom Mode

## 2.8 Transfer of Credits, Courses and Cross University Registration (If any)

Credits transferring must be in compliance with Mahidol University's regulations on Graduate Studies.

## 3. Curriculum and Instructors

### 3.1 Curriculum

**3.1.1 Number of credits** (not less than) 36 credits

### 3.1.2 Curriculum Structure

The curriculum structure is set in compliance with Announcement of The Commission on Higher Education Standards (CHES) on the subject of Criteria and Standards of Graduate Studies A.D. 2022, Master of Science Degree, Plan 1.2 Academic (Coursework and research) as below :

1) Required courses	22	credits
2) Elective courses not less than	2	credits
3) Thesis	12	credits
Total not less than	36	credits

### 3.1.3 Courses in the curriculum

#### 1.) Required courses 22 Credits

		Credits (Lecture-Practice-Self study)
RAOT 602	Principle of Toxicology	3 (3-0-6)
รพพ ๖๐๒	หลักพิษวิทยา	
RAOT 604	Principle of Occupational Health Epidemiology	3 (3-0-6)
รพพ ๖๐๔	หลักระบาดวิทยาทางอาชีวอนามัย	
RAOT 605	Seminar in Occupational Health and Toxicology	1 (1-0-2)
รพพ ๖๐๕	สัมมนาทางอาชีวอนามัยและพิษวิทยา	
RAOT 606	Practice in Occupational Health	2 (1-2-3)
รพพ ๖๐๖	การปฏิบัติทางอาชีวอนามัย	
RAOT 608	Human Genetic and Biomonitoring in Occupational Health	1 (1-0-2)
รพพ ๖๐๘	มนุษย์พันธุศาสตร์และการติดตามทางชีวภาพด้านอาชีวอนามัย	
RAOT 609	Occupational Health and Safety Management	2 (2-0-4)
รพพ ๖๐๙	การจัดการด้านอาชีวอนามัยและความปลอดภัย	
RAOT 613	Research Proposal and Scientific Writing	1 (1-0-2)
รพพ ๖๑๓	โครงการวิจัยและการเขียนเชิงวิทยาศาสตร์	

RAOT 614	Systemic and Clinical Toxicology in Occupational Medicine	2 (2-0-4)
รอมพ ๖๑๔	พิษวิทยาเชิงระบบและคลินิกทางอาชีวเวชศาสตร์	
RAOT 616	Occupational Health and Safety	2 (2-0-4)
รอมพ ๖๑๖	อาชีวอนามัยและความปลอดภัย	
RAOT 617	Introduction to Industrial Hygiene	2 (2-0-4)
รอมพ ๖๑๗	บทนำสู่ศาสตร์อุตสาหกรรม	
<b>Credits (Lecture-Practice-Self study)</b>		
*RAOT 618	Occupational and Environmental Medicine	2 (2-0-4)
รอมพ ๖๑๘	อาชีวเวชศาสตร์และเวชศาสตร์สิ่งแวดล้อม	
*RAOT 619	Occupational Health and Toxicology Internship	1 (0-2-1)
รอมพ ๖๑๙	การฝึกงานด้านอาชีวอนามัยและพิษวิทยา	

\* new course

## 2.) Elective Courses not less than 2 Credits

RAOT 611	Special Topics in Occupational Health and Toxicology	1 (1-0-2)
รอมพ ๖๑๑	หัวข้อพิเศษทางอาชีวอนามัยและพิษวิทยา	
RAOT 612	Approach to Genetic Association in Health and Toxic Substance	1 (1-0-2)
รอมพ ๖๑๒	แนวทางเข้าถึงความสัมพันธ์ของปัจจัยด้านพันธุกรรมทางสุขภาพ และสารพิษ	
RAOT 615	Assessment of Human Exposure to Environmental Pollution	2 (2-0-4)
รอมพ ๖๑๕	การประเมินการสัมผัสมลพิษสิ่งแวดล้อมในมนุษย์	
RACE 607	Clinical Economics	3 (3-0-6)
รอมรค ๖๐๗	เศรษฐศาสตร์คลินิก	
RACE 618	Systematic Review and Meta-Analysis	3 (2-2-5)
รอมรค ๖๑๘	การทบทวนอย่างเป็นระบบและอภิวเคราะห์	
RACE 624	Research Informatics and Data Management	2 (2-0-4)
รอมรค ๖๒๔	สารสนเทศทางการวิจัยและการจัดการข้อมูล	
RACE 625	Medical Statistics for Clinical Research	3 (2-2-5)
รอมรค ๖๒๕	สถิติทางการแพทย์ในการวิจัยคลินิก	
RACE 626	Advanced Statistical Analysis in Clinical Research	3 (2-2-5)
รอมรค ๖๒๖	การวิเคราะห์สถิติทางการแพทย์คลินิกขั้นสูง	
SCTX 633	Clinical Toxicology	2 (2-0-4)
วทพษ ๖๓๓	พิษวิทยาคลินิก	

In addition to elective courses mentioned above, a student may register other courses in international program offered by other faculties equivalent to graduate

studies, Mahidol University or the ones offered by other universities according to the student's interest with the approval of the curriculum committee or the advisor.

### 3. Thesis

RAOT 698      Thesis      12 (0-36-0)

รณอพ ๖๙๘      วิทยานิพนธ์

#### 3.1.4 Research Projects of the Program

Curriculum research guidelines

1. Occupational health and safety
2. Occupational toxicology
3. Occupational health epidemiology
4. Gene- environment interactions

#### 3.1.5 Definition of Course Codes

Four main alphabets are defined as follows:

The first two-alphabets are the faculty responsible for teaching and learning.

RA refers to the Faculty of Medicine, Ramathibodi Hospital.

SC refers to the Faculty of Science.

The later two-alphabets are the program responsible for teaching and learning.

OT refers to Occupational Health and Toxicology.

CE refers to Clinical Epidemiology

TX refers to Toxicology.

The 3 digits (6XX) indicate that the courses are in the graduate study level.

### 3.1.6 Study Plan

Year	Semester 1			Semester 2		
1	RAOT 602	Principle of Toxicology	3(3-0-6)	RAOT 605	Seminar in Occupational Health and Toxicology	1(1-0-2)
	RAOT 604	Principle of Occupational Health Epidemiology	3(3-0-6)	RAOT 606	Practice in Occupational Health	2(1-2-3)
	RAOT 609	Occupational Health and Safety Management	2(2-0-4)	RAOT 608	Human Genetic and Biomonitoring in Occupational Health	1(1-0-2)
	RAOT 614	Systemic and Clinical Toxicology in Occupational Medicine	2(2-0-4)	RAOT 613	Research proposal and Scientific writing	1(1-0-2)
	RAOT 616	Occupational Health and safety	2(2-0-4)	RAOT 617	Introduction to Industrial Hygiene	2(2-0-4)
	RAOT 618	Occupational and Environmental Medicine	2(2-0-4)	RAOT 619	Occupational Health and Toxicology Internship	1(0-2-1)
				<b>Elective Courses</b>		2 credits
				RAOT 698	Thesis	4(0-12-0)
<b>Total 14 credits</b>				<b>Total 14 credits</b>		
Year	Semester 1			Semester 2		
2	RAOT 698	Thesis	4(0-12-0)	RAOT 698	Thesis	4(0-12-0)
	<b>Total 4 credits</b>			<b>Total 4 credits</b>		

### 3.1.7 Course Description

Please see Appendix A.



### 3.2 Name, I.D. Number, Title and Degree of Instructors

#### 3.2.1 Full time instructors of the curriculum (Please see Appendix B)

No.	Identification Card Number Academic position - Name – Surname	Degree (field of study) University: Year of graduate	Department
1.	x-xxxx-xxxxx-xx-x Professor Winai Wananukul	Certificate Clinical Pharmacology & Toxicology fellow, University of Minnesota, USA: 1995. Diploma of the Thai Board of Internal Medicine of Clinical Science, The Medical Council of Thailand: 1990. M.D., Mahidol University : 1984. B.Sc. (Medical Sciences), Mahidol University : 1982.	Department of Medicine, Faculty of medicine Ramathibodi Hospital, Mahidol University
2.	x-xxxx-xxxxx-xx-x Associate Professor Satariya Trakulsrichai	Diploma of the Thai Board of Clinical Pharmacology and Toxicology, The Medical Council of Thailand: 2012 Certification of Academic Fellowship of Emergency Medicine University of Florida, USA: 2006 Diploma of the Thai Board of Emergency Medicine, The Medical Council of Thailand: 2004 Diploma of the Thai Board of Internal Medicine, The Medical Council of Thailand: 1997 M.D., Mahidol University: 1991	Department of Emergency Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

No.	Identification Card Number Academic position - Name – Surname	Degree (field of study) University: Year of graduate	Department
3.	x-xxxx-xxxxx-xx-x Assistant Professor Chathaya Wongrathanandha	Diploma of the Thai Board of Preventive Medicine, Occupational Medicine, The Medical Council of Thailand: 2021 M.P.H. (Occupational and Environmental Health), Harvard University, USA: 2013 M.Sc. (Health Economics and Health Care Management) Chulalongkorn University : 2012 Diploma of the Thai Board of Family Medicine, The Medical Council of Thailand: 2004 M.D. (Second class honors), Chulalongkorn University : 2001	Department of Community Medicine, Faculty of medicine Ramathibodi Hospital, Mahidol University
4.	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Doungrutai Buadoung	Ph.D. (Environmental Science) Chulalongkorn University : 2009. M.Sc. (Environmental Science) Chulalongkorn University : 1999. B.N.S. (Nursing Science), Mahidol University : 1994.	School of Nursing Ramathibodi Hospital, Faculty of Medicine Ramathibodi Hospital, Mahidol University
5.	x-xxxx-xxxxx-xx-x Assistant Professor Sahaphume Srisuma	Certificate of Achievement Knowledge for Successful Completion of Fellowship Training in Medical Toxicology, Rocky Mountain Poison and Drug Center, USA: 2015 Diploma of the Thai Board of Medicine, The Medical Council	Department of Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

No.	Identification Card Number Academic position - Name – Surname	Degree (field of study) University: Year of graduate	Department
		of Thailand: 2012 M.D., Mahidol University : 2008	
6.	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Suchinda Jarupat Maruo	Ph.D. (Life Science and Human Technology), Nara Women's University, Japan: 2002 M.Sc. (Occupational Health and Safety) Mahidol University : 1991 B.Sc. (Nursing), Mahidol University : 1987	Department of Occupational Health and Safety, Faculty of Public Health, Mahidol University
7.	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Wanna Sanongdej	Ph.D. (Nursing), Mahidol University : 2015 M.Sc. (Public health), Mahidol University : 2003 B.Sc. (Nursing), Mahidol University : 1989	School of Nursing Ramathibidi Hospital, Faculty of Medicine Ramathibidi Hospital, Mahidol University
8.	x-xxxx-xxxxx-xx-x Lecturer Dr. Jakris Eu-ahsunthornwattana	Ph.D. (Statistical Genetics) Newcastle University, UK: 2015 M.Sc. (Epidemiology: Principles and Practice) University of London, UK.: 2005 M.D. (First class honours), Mahidol University : 1999	Department of Community Medicine, Faculty of medicine Ramathibodi Hospital, Mahidol University
9.	x-xxxx-xxxxx-xx-x Lecturer Warisa Soonthornvinit	Diploma of the Thai Board of Preventive Medicine, Occupational Medicine, The Medical Council of Thailand: 2018 B.Sc., Occupational Health Safety, Sukhothai Thammathirat	Department of Community Medicine, Faculty of medicine Ramathibodi Hospital, Mahidol University

No.	Identification Card Number Academic position - Name – Surname	Degree (field of study) University: Year of graduate	Department
		University : 2021 M.Sc. (Occupational Medicine) Khon Kaen University : 2018 M.D., Khon Kaen University: 2014	

### 3.2.2 Full time instructors

No.	Identification Card Number Academic position - Name – Surname	Degree (field of study) University: Year of graduate	Department
1.	Associate Professor Thanyachai Sura	Membership of the Royal Colleges of Physicians (MRCP), London, UK: 1991 Certificate in Medical Genetics and Molecular Medicine, Oxford University, England: 1990 Registra at Institute of molecular medicine, John Radcliffe Hospital, Headington, Oxford University, England: 1989 Diploma of the Thai Board of Internal Medicine, The Medical Council of Thailand: 1987 M.D., Mahidol University:1980	Department of Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University
2.	Assistant Professor Chaturon Tangsangwornthamma	M.Sc. (Occupational and Environmental Medicine, Public Health) Icahn school of	Chakri Naruebodindra Medical Institute, Faculty of Medicine

No.	Identification Card Number Academic position - Name – Surname	Degree (field of study) University: Year of graduate	Department
		Medicine at Mount Sinai, New York, USA: 2017 Diploma of the Thai Board of Family Medicine, The Medical Council of Thailand: 2008 M.D., Srinakarindwirot University: 2003	Ramathibodi Hospital, Mahidol University
3.	Assistant Professor Dr. Donniphat Dejsuphong	Postdoc Fellow, Dana-Farber Cancer Institute, Harvard Medical School, Boston, USA: 2012 Ph.D. (Doctor of Medical Science), Graduate School of Medicine, Kyoto University, Kyoto, Japan; 2009 M.D., Mahidol University: 2001	Department of Medicine, Faculty of medicine Ramathibodi Hospital, Mahidol University

### 3.2.3 Part time instructors

No.	Identification Card Number Academic position - Name – Surname	Degree (field of study) University: Year of graduate	Department
1.	x-xxxx-xxxxx-xx-x Professor Dr. Wichai Aekplakorn	Diploma of the Thai Board of Family Medicine, The Medical Council of Thailand: 2003 Ph.D.(Epidemiology), The University of North Carolina at Chapel Hill, USA: 2001 Diploma of the Thai Board of Preventive Medicine, Occupational Medicine, The	Department of Community Medicine, Faculty of medicine Ramathibodi Hospital, Mahidol University (Part time)

No.	Identification Card Number Academic position - Name – Surname	Degree (field of study) University: Year of graduate	Department
		Medical Council of Thailand: 1996 M.Sc. (Occupational Medicine), National University of Singapore, Singapore: 1992. Diploma of the Thai Board of Clinical Preventive Medicine, The Medical Council of Thailand: 1988 M.D., Mahidol University, Thailand: 1982.	

And the administrative program committee will invite part time instructors to teach the special topics in courses. The candidates shall have experience or degree(s) relevant to the requirement of the program.

**4. Details of Practicum (if any):** None

**5. Thesis requirement**

The topics on research must be related to the advancement of knowledge in occupational disease and occupational safety, health risks from exposure to hazard from work and the environment, epidemiology of occupational health and the environment, or interaction between genetics, environmental factors and diseases, with the aim to enhance and improve the quality of life of the population in the country as specified in 3.1.4. Under their advisors' advice, students are responsible for conducting their own research and writing up their theses, which must be submitted within the time frame and conform to the format prescribed by the program and the Faculty of Graduate Studies.

**5.1 Short description**

Specify research topic in occupational health and toxicology. Conduct the research by planning, designing, collecting, searching, conducting, analyzing, synthesizing, discussing on research ethics. The results of research are compiled into a thesis and

presented. These are published in journals or academic publications or submitted to the conference with regard to ethics in the dissemination of research.

### **5.2 Standard Learning Outcomes**

Students can analyze and integrate occupational health and toxicology knowledge to prepare a thesis proposal. The thesis research is systematically conducted and disseminated in an ethical way.

**5.3 Time Frame:** Semester 2 of academic year 1 and Semester 1 and 2 of academic year 2

**5.4 Number of credits:** 12 credits

### **5.5 Preparation**

Advising time must be provided including advice from advisors. Thesis information from official document or website must be continually revised and up-to-date.

### **5.6 Evaluation Process**

The research process shall be evaluated by the advisor of student's thesis every time of consultation during conducting the research. The final oral examination is systematically evaluated by the graduate committee following the standards of the Faculty of Graduate Studies, Mahidol University.

## Section 4 Learning Outcome, Teaching Strategies and Evaluation

### 1. Development of Students' Specific Qualifications

Special Characteristics	Teaching Strategies or Student Activities
<p>Having characteristics by the core values of Mahidol University.</p> <p>M = Mastery  A = Altruism  H = Harmony  I = Integrity  D = Determination  O = Originality  L = Leadership</p>	<p>Organize activities to promote University's core values through encouragement of critical thinking and working in multidisciplinary environment, for example:</p> <ul style="list-style-type: none"> <li>- Assign graduate students to participate in monthly Faculty Hour activities organized by Ramathibodi Student Affairs, Faculty of Medicine Ramathibodi Hospital (1/month)</li> <li>- Support graduate students to attend and present research work in Ramathibodi international Academic Conference (RIAC), organized annually by Academic Affair Convention Center and Management of Ramathibodi Hospital (1/year)</li> <li>- Ethically practicing in multidisciplinary team to identify health hazard in workplace by collecting unbiased and analyzing data eg. Training good clinical practice in conducting research (1 time)</li> <li>- Soft skill classes according to the faculty as follows: (must have passed at least 4 training areas) <ol style="list-style-type: none"> <li>1. Communication and Language Skills</li> <li>2. Leadership and management Skills</li> <li>3. Research Skills</li> <li>4. Information Technology Skills</li> <li>5. Creative and Innovative Skills</li> <li>6. Health Literacy Skills</li> <li>7. Entrepreneurial Literacy Skills</li> <li>8. Entrepreneurial Digital Literacy Skills</li> </ol> </li> </ul>



## 2. Development of Learning Outcome in Each Objective

Expected Outcomes	Teaching Strategies	Evaluation Strategies
<b>1. Knowledge</b> 1.1 Understand the principles and theories of occupational health, toxicology, epidemiology and biostatistics, research methodology, human genetics and critical appraisal of research articles. 1.2 Systematically apply the integrated knowledge in occupational health, toxicology and related fields.	1. Lecture 2. Discussion 3. Assign self-study both individual or group activities and presentation 4. Case study 5. Learn from the real situation 6. Practice	1. Observed in group discussions and group activities 2. The quality of the work assigned. There is an explicit reference to the involved works 3. Report on case study analysis 4.. Attendance a classroom 5. Job submission deadlines 6. Behavioral ethics
<b>2. Skills</b> 2.1 Master the process of data collection and appraisal. 2.2 Effectively assess health risk and solve problems related to occupational health and toxic Substance. 2.3 Apply academic and research content or experiences in occupational health and toxicology, and related subjects to conduct the research using statistical methods and responds to the problem in a real situation select and use statistical methods to analyze data appropriately.	1. Discussion 2. Assign self-study both individual or group activities and report writing 3. Case study 4. Brainstorm 5. Practice 6. Study visit 7. Thesis 8. Publish research and presentation at academic conferences	1. Examination 2. Discussion 3. Presentation 4. Analysis case study report 5. Observation of the real situation 6. The accuracy of the exercise
<b>3. Ethics</b> 3.1 Have academic integrity in research, collecting and presenting data.	1. Discussion 2. Assign self-study both individual or group and presentation	1. A summary of the group discussions, and brainstorming

Expected Outcomes	Teaching Strategies	Evaluation Strategies
3.2 Behave ethically academic and professional. 3.3 Have discipline, punctuality and respect for the rules or regulations.	3. Case study 4. Demonstration and return demonstration	2. Report of case study analysis 3. The quality of the study report 4. Results of practice 5. Progression in thesis 6. Research publication in the academic journal or conference
<b>4. Character</b> 4.1 Have a responsibility to self, others a good relationship with colleagues in other organizations. 4.2 Have the characteristics of a good leader, follower and teamwork. 4.3 Communicate by reading, listening, writing, and using information technology appropriately.	1. Seminar and discussion groups 2. Assign research in groups 3. Encourage students to participate in activities at all levels of the university 4. Organize group activities. and assign students to be member, group leaders, and teamwork 5. Practice retrieval data and statistical analysis by using a computer 6. Assign students to research, submit reports, or present their work in class by using information technology	1. Results from seminars and discussions 2. Observation 3. Assess participation in various activities of the University 4. Evaluation by students in team 5. Evaluation form using rubric scale 5.1 Results of using information technology in the research 5.2 The results of statistical analysis from programmed software. 5.3 Results of using information technology in presenting works 5.4 Quality of presentation and communication

### 3. Curriculum Mapping

Please see Appendix C.

## Section 5 Criteria for Student Evaluation

### 1. Grading System

Grading system and graduation shall be complied with the criteria stated in Regulations of Mahidol University on Graduate studies.

### 2. Evaluation Process for the Learning Outcome of Students

2.1 There is a verification of standardized assessment process for student's achievement according to the learning outcomes setting in each course. Students are assessed from other students and the program committee at the end of the course in each semester.

2.2 There is a verification of standardized assessment process for student's achievement at the curriculum level by providing an evaluation of the overall program from Master user, Alumni and external experts.

### 3. Graduation Requirement

#### Plan 1.2 Academic (Course work and research)

1. Students must complete their courses as stated in the curriculum with a minimum CUM-GPA of 3.00.

2. Propose thesis to the committee appointed by the Faculty of Graduate Studies and to the public and pass oral thesis examination as the final stage

3. The complete or part of the thesis has to be published as a review article, accepted as an innovation, acknowledged as a creative product, or accepted as an academic article that can be searched

4. Other requirements shall follow those that specified by the Faculty of Graduate Studies

## Section 6 Faculty Development

### 1. The Orientation for New Faculty Members

- 1.1 Introducing new lecturers to staff, and others in the faculty
- 1.2 Providing mentor to new lecturers for being guidance and take care new lecturers.
- 1.3 Offering new instructors to attend orientation training about guidance as an instructor for understanding about university strategic plan, philosophy of faculty and department.
- 1.4 Assigning new lecturers to take responsibility in the course and take a part as a co-advisor of students' theses in order to learn the process of teaching and research.

### 2. Skill and Knowledge Development for New Faculty Members

#### 2.1 Skills Development in Teaching and Evaluation

- 2.1.1 Organizing special seminars for instructors in order to train them about teaching methods, measurement and evaluation, curriculum development, and research.
- 2.1.2 Encourage to increase knowledge and enhance experience for teaching and research by writing a research project and applying research grants from faculty, university, and outside the university.
- 2.1.3 Encourage self-development by attending academic meetings in the country and abroad to enhance their experience, and create a network of educational and research cooperation.

#### 2.2 Other Academic and Professional Skill Development

- 2.2.1 Encourage instructors to participate in academic activities such as lecturers in academic conferences, experts in evaluating research projects, academic position and professional committees, etc.
- 2.2.2 Encourage instructors to apply research grants and academic publication.
- 2.2.3 Encourage instructors to produce academic work and request for academic positions.

## Section 7 Quality Assurance

### 1. Regulatory Standard

1.1 A program committee oversees the regulation and recommendation in the guideline and provides responsible curricula for instructors.

1.2 Instructors are responsible for planning, teaching and developing the curriculum with the management of program committee, with tracking and data collection for further development of curriculum. These performances will continue all year.

1.3 The graduated master will evaluate a satisfaction in program and teaching

1.4 The satisfaction of the program and the characteristics of the graduate master are evaluated by the master's user.

### 2. Graduate Students

To ensure the graduate master from the program meet the requirement of the stakeholders, the quality of program will be monitored by collaboration between program and the faculty of Graduate Studies to evaluate the student's and employer's satisfaction for developing better quality of the curriculum.

### 3. Students

#### 3.1 Academic advising/ counseling and other support for students

3.1.1 The program will provide orientation about academic advice, curriculum, learning plan, methods of study, and appointment with advisor.

3.1.2 The program will provide a program advisor to advise and assist students in their learning / or to provide instructions when students have a problem. Problems that cannot be resolved at the advisor level will be brought to consideration by the program committee.

3.1.3 The program will provide the opportunity for students to present their work to public at international conferences / exhibitions to promote their knowledge and develop research skill.

#### 3.2 Student's right to file complaints

Students may appeal directly with regard to technical or other matters to Dean of the Faculty of Graduate Studies, either in person or by filing documents. The Dean of the Faculty of Graduate Studies will consider such appeals.

## **4. Instructors**

### **4.1 Recruitment of new instructors**

The faculty recruits new teachers by screening the applicants' qualifications and experience from their application forms followed by an assessment of knowledge and skills from the interview. The decision to recruit is based principally on academic qualifications, which must be compliant to the Ministry of Education's graduate curriculum standards, experience that is considered beneficial to curriculum, and the committee's resolutions for recruiting new instructors.

### **4.2 Participation of faculty members in planning, following up and reviewing the curriculum**

4.2.1 Monthly meetings are organized to plan, discuss and exchange ideas on course teaching and learning. The teacher will review both the quality of the courses and recommendation from the course evaluation for planning the course improvement.

4.2.2 The seminars are organized for advisors and students to follow progression in their thesis. Moreover, teachers will be aware of student's problem and find solutions at the right time to help the students graduate within a timeframe.

### **4.3 Appointment of guest lecturers**

Responsible faculty instructors may nominate guest lecturers whose qualifications and experience are relevant to the course and differ from the qualifications and experience of the faculty instructors. This enables students to gain theoretical and practical knowledge from the experts. The nomination must be presented to the Program President for authorization prior to the commencement of the course.

## **5. Program, Study and Student Assessment**

### **5.1 Program**

Program committee will meet every month to consider feedback of instructors and students. The students' performance and feedback will be reviewed for improving the course. In addition, program committee and instructors will have an annual meeting to develop teaching in program for the next academic year.

### **5.2 Study**

The study environment is regularly monitored by observation, evaluation of student performance in assignment, examinations and conduct of research.

### **5.3 Student Assessment**

The students will be monitored by observation of students' performance, evaluation of assignment, presentation, examinations and conduction of thesis research. At the end of the course in each semester, students are assessed from other students and the program committee. During research, the students will meet their advisors every 2-4 weeks to check progress, keep research on track and solve problems.

## **6. Learning Support**

### **6.1 Budget management**

Faculty of Graduate Studies and Faculty of Medicine Ramathibodi Hospital have allocated an annual budget and revenue for purchasing books, textbooks, media, teaching materials, audio-visual equipment, and computer hardware to support teaching-learning in the classroom. Moreover, an annual budget has been used to create a suitable environment for student in self-study, and develop academic staffs and supporting personals.

### **6.2 Utilizing available resources**

The Faculty provides teaching and learning resources as following

6.2.1 Libraries and electronic databases that accessible through computer network and the Internet. The students can search various information from both national and worldwide resources.

6.2.2 A computer room at the library for research information.

6.2.3 The central laboratories for supporting faculty research facilities

6.2.4 Adequate classrooms, media, materials, educational materials and a audio-visual equipment for teaching and learning activities.

6.2.5 Environment and atmosphere conducive to student learning

### **6.3 Finding more resources**

The program will explore the need for using textbooks, reference book, teaching media. The instructors and students will be asked to nominate textbooks and other materials which they need. List of reference books and textbooks are offered to the library of the faculty to purchase and provide to teachers and students.

### **6.4 Studying the sufficiency of the resource**

The Faculty has surveyed the adequacy of books, textbooks, journals and teaching equipment, and other resources. They will consider the satisfaction, needs of books,

textbooks, journals and teaching equipment. The results of survey will be used to meet the needs of students and instructors within the faculty.

## 7. Key Performance Indicators

The Master Program in Occupational Health and Toxicology ( International Program), Department of Community Medicine divides key performance based on the curriculum that meets the standards of Thai Qualifications Framework following conditions: (1) the compulsory performance indicators (numbers 1-5) must pass beyond expectations and (2) the total number of performance indicators must reach their goal by no less than 80 percent each year. The Key Performance Indicators are as follows:

Key Performance Indicators	Academic Year				
	2024	2025	2026	2027	2028
1. At least 80% of all full-time instructors in each program have to participate in meetings that set up plans to evaluate and revise the curriculum.	✓	✓	✓	✓	✓
2. The program must have the details of the curriculum according to Programme Specification which is associated with the Thai Qualifications Framework or the standards of the program (if any)	✓	✓	✓	✓	✓
3. The program must have course specifications and field experience specifications (if any) according to Course Specification and Field Experience Specification before the beginning of each trimester	✓	✓	✓	✓	✓
4. Instructors must produce course reports and file experience reports (if any) according to Course Report and Field Experience Report within 30 days after the end of the trimester.	✓	✓	✓	✓	✓
5. Instructors must produce program reports according to Programme Report within 60 days after the end of the academic year	✓	✓	✓	✓	✓
6. Instructors must revise the grading of students	✓	✓	✓	✓	✓



Key Performance Indicators	Academic Year				
	2024	2025	2026	2027	2028
according to learning standards indicated in TQF3 and TQF4 (if any) for at least 25 percent of courses that are offered each academic year.					
7. Instructors must assess the development and/or improvement of teaching methods, teaching techniques or the grading system from the evaluation results in TQF 7 of the previous year.		✓	✓	✓	✓
8. Every new instructor (if any) has to participate in the orientation and receive adequate information on the college's teaching requirements.	✓	✓	✓	✓	✓
9. Full-time instructors must demonstrate academic and/or profession improvement at least once a year.	✓	✓	✓	✓	✓
10. The number of supporting staff (if any) who demonstrate academic and/or professional improvement by at least 50 percent each year.	✓	✓	✓	✓	✓
11. The level of satisfaction from the previous year's students and new graduates toward curriculum quality, with an average score of at least 3.5 out of 5		✓	✓	✓	✓
12. The level of satisfaction from employers of new graduates with an average score of at least 3.5 out of 5			✓	✓	
13. Instructors have been evaluated by students after teaching at 100 percent.	✓	✓	✓	✓	✓
14. The number of accepted students in accordance with the program's plan.	✓	✓	✓	✓	✓
15. Graduates who get a job with a starting rate salary not lower than the rate stated by the Office of the Civil Service Commission (OCSC).		✓	✓	✓	✓

## Section 8 Evaluation and Improvement of the Curriculum Implementation

### 1. Evaluation on the Teaching Efficiency

#### 1.1 Evaluation of Teaching Strategies

1.1.1 Observe student's behavior and interaction

1.1.2 Organize meetings for instructors to exchange ideas about learning and recommendations.

1.1.3 Ask and analyze the results from the student's evaluation

#### 1.2 Evaluation of Instructors' Skills in Using Teaching Strategies

1.2.1 Evaluate teaching strategies, punctuality, clarifying course objectives, criteria for measurement and using instruction media.

1.2.2 Self and colleagues' evaluation

1.2.3 Student performance test

### 2. Overall Evaluation of the Curriculum

2.1 Assess the overall program by students

2.2 Meeting between representative student and representative teacher

2.3 Evaluate the results of the program by consultants or experts

2.4 Assess the results of the program by the master user and other stakeholders.

### 3. Review of the Evaluation and Plans for Improvement

3.1 The data from the program implementation will be reported to the instructor responsible for the curriculum

3.2 The responsible instructors will report result of the curriculum implementation to Head of Department at yearly.

3.3 The course instructors meeting will review the performance of the course.

## Appendix A

### Course Description

#### 1. Required Courses

		Credits (Lecture-Practice-Self-study)
<b>RAOT 602</b>	<b>Principle of Toxicology</b>	<b>3 (3-0-6)</b>
<b>رموف ๖๐๒</b>	<b>หลักพิษวิทยา</b>	
	Knowledge of basic toxicology; toxicokinetics; biotransformation of xenobiotics; mechanism of toxicity and carcinogenicity; mechanism and effect of toxicants; risk assessment; prevention and management of exposure to heavy metals, radiation, radioactive substances, solvents, and pesticides	
	ความรู้พื้นฐานด้านพิษวิทยา พิษจลนศาสตร์ การเปลี่ยนแปลงของสารในร่างกาย กลไกความเป็นพิษและการเกิดมะเร็ง กลไกอาการพิษ การประเมินความเสี่ยง การป้องกันและจัดการเกี่ยวกับการได้รับสัมผัสโลหะหนัก รังสี สารกัมมันตรังสี ตัวทำละลาย และสารกำจัดศัตรูพืช	
<b>RAOT 604</b>	<b>Principle of Occupational Health Epidemiology</b>	<b>3(3-0-6)</b>
<b>رموف ๖๐๔</b>	<b>หลักระบาดวิทยาทางอาชีวอนามัย</b>	
	Principles of epidemiology as relevant to occupational health; measurement of disease burden; exposure measurement; screening test; use of biomarkers in epidemiology; epidemiological study designs; epidemiologic causality, bias, confounding and interaction; common statistical methods for epidemiology; data analysis using generic statistical software; good practices in data management and in presentation of results; surveillance and disease investigation; ethics and guideline for human research	
	หลักระบาดวิทยาทางอาชีวอนามัย มาตรวัดความชุกและอุบัติการณ์ การประเมินการสัมผัส การศึกษาตามแผนการตรวจคัดกรอง การใช้ดัชนีชี้วัดทางชีวภาพในเชิงระบาดวิทยา การออกแบบการศึกษาทางระบาดวิทยา การศึกษาย้อนหลัง อดีตทางการวิจัย ปัจจัยทางสถิติที่ใช้ในทางระบาดวิทยา การวิเคราะห์ข้อมูลและโปรแกรมซอฟต์แวร์ทางสถิติ ข้อปฏิบัติที่ดีในการจัดการและการนำเสนอข้อมูล การเฝ้าระวังและการสอบสวนโรค หลักจริยธรรมและแนวทางปฏิบัติสำหรับการทำวิจัยในคน	
<b>RAOT 605</b>	<b>Seminar in Occupational Health and Toxicology</b>	<b>1(1-0-2)</b>
<b>رموف ๖๐๕</b>	<b>สัมมนาทางอาชีวอนามัยและพิษวิทยา</b>	
	Ability to access and use information resources effectively, efficiently and ethically; critical appraisal of current literature in occupational health and toxicology; research presentation and discussion among peer groups for effective scientific communication	

ความสามารถในการเข้าถึงและใช้ทรัพยากรสารสนเทศอย่างมีประสิทธิภาพ ประสิทธิภาพ ตามหลักจริยธรรม การประเมินคุณค่าของบทความวิจัยด้านอาชีวอนามัยและพิษวิทยาในปัจจุบัน การนำเสนอและอภิปรายเพื่อการสื่อสารเกี่ยวกับงานวิจัยทางวิทยาศาสตร์อย่างมีคุณภาพ

#### Credits (Lecture-Practice-Self-study)

**RAOT 606 Practice in Occupational Health 2(1-2-3)**  
**รมอพ ๖๐๖ การปฏิบัติทางอาชีวอนามัย**  
 Health risk assessment; walk-through survey; small and medium enterprises; agricultural worker; large enterprise; informal sector; occupational medicine clinic; field visit; code of ethics for occupational health professional

การประเมินความเสี่ยงทางสุขภาพ การเดินสำรวจ ปฏิบัติการโรงงานขนาดกลางและเล็ก เกษตรกร โรงงานขนาดใหญ่ ส่วนงานนอกระบบ คลินิกอาชีวเวชศาสตร์ ปฏิบัติการออกเยี่ยมพื้นที่ จรรยาบรรณวิชาชีพอาชีวอนามัย

**RAOT 608 Human Genetic and Biomonitoring in Occupational Health 1(1-0-2)**

**รมอพ ๖๐๘ มนุษย์พันธุศาสตร์และการติดตามทางชีวภาพด้านอาชีวอนามัย**  
 Principles of human genetics as relevant to occupational health; mechanism of inheritance; genetic variation; mutations; single nucleotide polymorphisms ( SNPs ); molecular methods in genetics; gene and environment interactions; ethical, legal and social implications of genetic screening in population

หลักการทางมนุษย์พันธุศาสตร์ที่เกี่ยวข้องกับอาชีวอนามัย กลไกการสืบทอด ความผันแปรของรหัสพันธุกรรม การกลายพันธุ์ การเปลี่ยนแปลงในลำดับเบสเพียงตัวเดียว (เอส เอ็น พี) วิธีทางพันธุศาสตร์โมเลกุล ปฏิสัมพันธ์ระหว่างยีนกับสิ่งแวดล้อม ผลกระทบด้านจริยธรรม กฎหมายและสังคมของการคัดกรองพันธุกรรมในประชากร

**RAOT 609 Occupational Health and Safety Management 2(2-0-4)**  
**รมอพ ๖๐๙ การจัดการด้านอาชีวอนามัยและความปลอดภัย**

Principles and scope of law and regulations; environmental laws related to occupational health and safety management; the policy process for improving the health status of workers; the safety standards in enterprises; management for the future of work; code of ethics for occupational health professional

หลักการและขอบเขตของกฎหมายและกฎระเบียบ กฎหมายด้านสิ่งแวดล้อมที่

เกี่ยวข้องกับการจัดการอาชีวอนามัยและความปลอดภัย การกำหนดนโยบายเพื่อยกระดับสถานะสุขภาพของพนักงาน มาตรฐานความปลอดภัยในสถานประกอบการ การจัดการสำหรับลักษณะการทำงานในอนาคต จรรยาบรรณวิชาชีพของนักอาชีวอนามัยและความปลอดภัย

#### Credits (Lecture-Practice-Self-study)

**RAOT 613      Research Proposal and Scientific Writing      1 (1-0-2)**

**รมอพ ๖๑๓      โครงร่างการวิจัยและการเขียนเชิงวิทยาศาสตร์**

Principles and practice of good scientific writing; planning; literature review; appraising the literature; structure of grant proposal and scientific manuscript; scientific writing style; refereeing process and misconducts in scientific writing

หลักการและการฝึกเขียนผลงานทางวิทยาศาสตร์ การวางแผน ทบทวนวรรณกรรม ประเมินค่าวรรณกรรม โครงร่างงานวิจัยเพื่อขอทุน ผลงานตีพิมพ์ทางวิทยาศาสตร์ วิธีการเขียนผลงานทางวิทยาศาสตร์ วิธีการอ้างอิง ความประพฤติผิดในการเขียนผลงานทางวิทยาศาสตร์

**RAOT 614      Systemic and Clinical Toxicology in Occupational      2 (2-0-4)**  
**Medicine**

**รมอพ ๖๑๔      พิษวิทยาเชิงระบบและคลินิกทางอาชีวเวชศาสตร์**

Knowledge of toxicology in specific organ systems; clinical manifestation; prevention; management; laboratory test; specific antidotes; gathering information; reviewing literatures to give suggestion on management and prevention of toxicities

ความรู้เกี่ยวกับกระบวนการเกิดพิษที่เฉพาะกับอวัยวะ อาการแสดงทางคลินิก การป้องกัน การจัดการ การตรวจทางห้องปฏิบัติการ ยาต้านพิษ การรวบรวมข้อมูล การทบทวนวรรณกรรมเกี่ยวกับวิธีการจัดการและป้องกันการเกิดพิษ

**RAOT 616      Occupational Health and Safety      2 (2-0-4)**

**รมอพ ๖๑๖      อาชีวอนามัยและความปลอดภัย**

Occupational health hazards; physical, chemical, biological, biomechanical, and psychosocial hazards; hazard identification and controls; engineering control, administrative control, personal protective equipment (PPE); biosafety; risk communication; good practice in occupational health and safety

สิ่งคุกคามสุขภาพจากการประกอบอาชีพ สิ่งคุกคามด้านกายภาพ ด้านเคมี ด้านชีวภาพ ด้านชีวกลศาสตร์ และด้านจิตสังคม การค้นหาและควบคุมสิ่งคุกคาม การควบคุมทางวิศวกรรม การควบคุมทางการบริหารจัดการ อุปกรณ์ป้องกันอันตรายส่วนบุคคล ความปลอดภัยทางชีวภาพ การสื่อสารความเสี่ยง การปฏิบัติที่ดีในด้านอาชีวอนามัยและความปลอดภัย

## Credits (Lecture-Practice-Self-study)

<b>RAOT 617</b>	<b>Introduction to Industrial Hygiene</b>	<b>2(2-0-4)</b>
<b>رموف ๖๑๗</b>	<b>บทนำสู่ศาสตร์อุตสาหกรรม</b>	
	Principles of industrial hygiene; work environment monitoring; occupational exposure limits; industrial hygiene measurements and controls; ventilation; health risk assessment; code of ethics for the professional industrial hygienist	
	หลักสุขศาสตร์อุตสาหกรรม การติดตามสิ่งแวดล้อมการทำงาน ค่าขีดจำกัดในสิ่งแวดล้อมการทำงาน การวัดและการควบคุมด้านสุขศาสตร์อุตสาหกรรม การระบายอากาศ การประเมินความเสี่ยงต่อสุขภาพ จรรยาบรรณนักสุขศาสตร์อุตสาหกรรม	
<b>RAOT 618</b>	<b>Occupational and Environmental Medicine</b>	<b>2 (2-0-4)</b>
<b>رموف ๖๑๘</b>	<b>อาชีพเวชศาสตร์และเวชศาสตร์สิ่งแวดล้อม</b>	
	Occupational diseases; work-related diseases; fitness-for-duty assessment; return-to-work assessment; disease investigation; occupational medicine service; environmental health and medicine; pediatric environmental health; ethical principles of occupational medicine	
	โรคจากการทำงาน โรคเนื่องจากงาน การประเมินความสมบูรณ์พร้อม การประเมินเพื่อกลับเข้าทำงาน การสอบสวนโรค การบริการอาชีพเวชกรรม อนามัยสิ่งแวดล้อมและเวชศาสตร์สิ่งแวดล้อม อนามัยสิ่งแวดล้อมในเด็ก หลักจริยธรรมทางอาชีพเวชศาสตร์	
<b>RAOT 619</b>	<b>Occupational Health and Toxicology Internship</b>	<b>1(0-2-1)</b>
<b>رموف ๖๑๙</b>	<b>การฝึกงานด้านอาชีวอนามัยและพิษวิทยา</b>	
	A practical learning experience and engage in Occupational Health and Toxicology during internship in international agencies or academic institutes related to occupational health. Expected activities vary according to the specific area of occupational health and toxicology within professional goals of individual students: health risk assessment, toxicology, workers' health, occupational and environmental health related to management/implementation/ services and research.	
	ประสบการณ์การเรียนรู้โดยมีส่วนร่วมในงานด้านอาชีวอนามัยและพิษวิทยาระหว่างการฝึกงานกับหน่วยงาน หรือสถาบันศึกษาต่างประเทศที่เกี่ยวข้องกับอาชีวอนามัย กิจกรรมที่คาดหวังมีความสอดคล้องกับเป้าหมายของนักศึกษาแต่ละบุคคล เช่น การประเมินความเสี่ยงทางสุขภาพ พิษวิทยา สุขภาพคนทำงาน งานอาชีวอนามัยและอนามัยสิ่งแวดล้อมที่เกี่ยวข้องกับ การบริหารจัดการ การดำเนินงาน การจัดบริการ และการวิจัย	

## 2. Elective Courses

## Credits (Lecture-Practice-Self-study)

RAOT 611 Special Topics in Occupational Health and Toxicology 1(1-0-2)

รอมพ ๖๑๑ หัวข้อพิเศษทางอาชีวอนามัยและพิษวิทยา

International perspectives of occupational and environmental health; situation of heavy metal pollution; asbestos problem; environment and health impact assessment (EHIA); health promotion in workplace; proteome research; executive occupational health; barotrauma and decompression sickness; modern occupational health service; occupational health in special population; occupational safety and health system

มุมมองระดับนานาชาติเกี่ยวกับอาชีวอนามัยและอนามัยสิ่งแวดล้อม สถานการณ์มลภาวะจากโลหะหนัก ปัญหาแร่ใยหิน การวิเคราะห์ผลกระทบต่อสิ่งแวดล้อมและสุขภาพ การส่งเสริมสุขภาพในที่ทำงาน งานวิจัยโปรตีโอม อาชีวอนามัยสำหรับผู้บริหาร การบาดเจ็บจากแรงดันและโรคที่เกิดจากการลดความดันของบรรยากาศ การบริการรูปแบบใหม่ทางด้านอาชีวอนามัย อาชีวอนามัยสำหรับประชากรกลุ่มพิเศษ ความปลอดภัยจากการประกอบอาชีพและระบบสุขภาพ

RAOT 612 Approach to Genetic Association in Health and Toxic 1(1-0-2)

รอมพ ๖๑๒ แนวทางเข้าถึงความสัมพันธ์ของปัจจัยด้านพันธุกรรมทางสุขภาพและสารพิษ

Human genetics; toxic substance; mechanism of genetic mutation; mutagenesis; wild type gene; mutant gene; mechanism of DNA repair

มนุษย์พันธุศาสตร์ สารพิษ กลไกการเกิดการกลายพันธุ์ กระบวนการกลายพันธุ์ ยีนดั้งเดิม ยีนกลายพันธุ์ กลไกการซ่อมแซมดีเอ็นเอ

RAOT 615 Assessment of Human Exposure to Environmental Pollution 2(2-0-4)

รอมพ ๖๑๕ การประเมินการรับสัมผัสมลพิษสิ่งแวดล้อมในมนุษย์

Introduction to environmental health; exposure assessment; strategies and design for exposure assessment; human time-use patterns and exposure assessment; measuring human exposures to chemicals in air, water, soil, and settled dust; assessing exposure with biological markers; quality assurance; air pollution; water and soil pollution; industrial exposure; food exposure; bioaccumulation; hazardous waste; climate change

อนามัยสิ่งแวดล้อมเบื้องต้น การประเมินการรับสัมผัส หลักการและการออกแบบการประเมินการรับสัมผัส รูปแบบของการใช้ ระยะเวลาและการประเมินการรับสัมผัส การตรวจวัดการรับสัมผัสสารเคมีของคนจากอากาศ น้ำ ดิน และฝุ่น การประเมินการรับสัมผัสด้วยตัวชี้วัดทางชีวภาพ การควบคุมคุณภาพ มลภาวะทางอากาศ มลภาวะทางน้ำและดิน การรับสัมผัสจากโรงงานอุตสาหกรรม การรับสัมผัสจากอาหาร การสะสมทางชีวภาพ ของเสียอันตราย การเปลี่ยนแปลงสภาพภูมิอากาศ

## Credits (Lecture-Practice-Self-study)

**RACE 607 Clinical Economics****3(3-0-6)****รศ.ดร. ๖๐๗ เศรษฐศาสตร์คลินิก**

An overview of the health system; health economics; clinical economics; research methodology in the economic evaluation; costs of illness; cost and outcome measurements; patient-level economic evaluation; the decision tree analysis; the Markov Model; the Monte Carlo Simulation; the sensitivity analysis; the risk benefit analysis; the net clinical analysis; the budget impact analysis; behavioral economics; the critical appraisal of economic articles

ภาพรวมของระบบสุขภาพ เศรษฐศาสตร์สุขภาพ เศรษฐศาสตร์คลินิก วิทยาระเบียบวิธีวิจัยในการประเมินผลทางเศรษฐศาสตร์ ต้นทุนการเจ็บป่วย การวัดต้นทุนและผลลัพธ์ การประเมินผลทางเศรษฐศาสตร์ระดับผู้ป่วย การวิเคราะห์ต้นทุนไม่การตัดสินใจ แบบจำลองมาร์คอฟ สถานการณ์จำลองมอนติคาร์โล การวิเคราะห์ความไว การวิเคราะห์ผลประโยชน์ที่มีความเสี่ยง การวิเคราะห์ทางคลินิกสุทธิ การวิเคราะห์ผลกระทบงบประมาณ เศรษฐศาสตร์พฤติกรรม การประเมินเชิงวิพากษ์บทความทางเศรษฐศาสตร์

**RACE 618 Systematic Review and Meta-Analysis****3(2-2-5)****รศ.ดร. ๖๑๘ การทบทวนอย่างเป็นระบบและอภินิเคราะห์**

Reviewing methodology: the formulation of research questions, the rationale for conducting the study, identifying relevant studies, selecting studies inclusion and exclusion criteria, the data extraction and validation, the risk of bias assessment by the ROB2 software; the STATA software: the meta-analysis for continuous and dichotomous outcomes, heterogeneity, and the publication bias; the network the meta-analysis; meta-analysis for the genetic association study, diagnostic studies, and economic evaluation studies; preferred items for reporting the systematic review and the meta-analysis PRISMA

ระเบียบวิธีวิจัยของการทบทวนอย่างเป็นระบบ ตั้งคำถามวิจัย เหตุผลการดำเนินการศึกษา การค้นหาวิจัยที่เกี่ยวข้อง การเลือกการศึกษา กำหนดเกณฑ์การคัดเข้าและคัดออก การสกัดและตรวจสอบข้อมูล การประเมินความเสี่ยงต่อการเอนเอียงโดยซอฟต์แวร์อาร์โอบีทู การวิเคราะห์ข้อมูลแบบเมตาโดยสตาด้าซอฟต์แวร์สำหรับตัวแปรต่อเนื่องและตัวแปรกลุ่ม การประเมินความแปรปรวนและความเอนเอียงจากการรายงาน การวิเคราะห์ข้อมูลเครือข่ายเมตา การวิเคราะห์ข้อมูลเมตาในการศึกษาความสัมพันธ์ของยีนส์ การศึกษาแบบวินิจัยโรค การศึกษาการประเมินทางเศรษฐศาสตร์ วิธีการรายงานผลแบบพริสมา

**RACE 624 Research Informatics and Data Management****2(2-0-4)****รศ.ดร. ๖๒๔ สารสนเทศทางการวิจัยและการจัดการข้อมูล**

Research informatics; the advanced literature searching; the storage and organization of the medical information; data management; designing the data collection form; constructing databases; the data quality control; the data validation;



the database dictionary; the big data management and analysis; health informatics for the clinical research; the standard terminology and interoperability

สารสนเทศงานวิจัย การค้นหารรณกรรมขั้นสูง การเก็บและจัดข้อมูลทางการแพทย์ การจัดการข้อมูล การออกแบบแบบเก็บข้อมูล การสร้างฐานข้อมูล การควบคุมคุณภาพข้อมูล การตรวจสอบข้อมูล ฐานข้อมูลพจนานุกรม การจัดการและวิเคราะห์ข้อมูลขนาดใหญ่ สารสนเทศสุขภาพ สำหรับการวิจัยคลินิก มาตรฐานคำศัพท์และความสามารถในการปฏิบัติการร่วมกัน

**RACE 625      Medical Statistics for Clinical Research      3(2-2-5)**

**รmerc ๖๒๕      สถิติทางการแพทย์ในการวิจัยคลินิก**

The statistical inference for continuous data: the comparison of two means, the analysis of variance (ANOVA), the correlation coefficient and the linear regression; the statistical inference for categorical data: the Chi-square test, the Fisher exact test, the odds ratio, the risk ratio; the sample size estimation; the data analysis by the STATA software

การอนุมานทางสถิติสำหรับข้อมูลเชิงปริมาณ การเปรียบเทียบค่าเฉลี่ย ๒ กลุ่ม การวิเคราะห์ความแปรปรวน สัมประสิทธิ์สหสัมพันธ์ และสมการถดถอย การอนุมานทางสถิติสำหรับข้อมูลกลุ่ม การทดสอบไคสแควร์ ฟิชเชอร์เอ็กซ์แซค อัตราส่วนแต้มต่อ อัตราส่วนความเสี่ยง การประมาณค่าขนาดตัวอย่าง การวิเคราะห์ข้อมูลโดยใช้ซอฟต์แวร์สตาด้า

**RACE 626      Advanced Statistical Analysis in Clinical Research      3(2-2-5)**

**รmerc ๖๒๖      การวิเคราะห์สถิติทางการแพทย์ขั้นสูง**

Real research data analysis; development of clinical prediction score; survival analysis; Cox regression analysis; longitudinal data analysis; imputation analysis; treatment effect model; data analysis by STATA/R software; GCP in data analysis

วิเคราะห์ข้อมูลจริงจากงานวิจัย การพัฒนาคะแนนทำนายผลทางคลินิก การวิเคราะห์การรอดชีพ สมการถดถอยแบบค็อก การวิเคราะห์ข้อมูลระยะยาว การวิเคราะห์ข้อมูลที่ขาดหายไป การวิเคราะห์ข้อมูลอิทธิพลของรูปแบบการรักษา การวิเคราะห์ข้อมูลโดยใช้ซอฟต์แวร์สตาด้า และอาร์ การปฏิบัติทางคลินิกที่ดีด้านการวิเคราะห์ข้อมูล

**SCTX 633      Clinical Toxicology      2(2-0-4)**

**วทพษ ๖๓๓      พิษวิทยาคลินิก**

Adverse and toxic reactions; general principles of medical toxicology; management of emergency cases; role of the toxicology laboratory; treatment of poisoning

อาการพิษและอาการไม่พึงประสงค์จากยาและสารเคมี หลักการทั่วไปของพิษวิทยา การแพทย์ หลักการการบำบัดรักษาในสภาวะฉุกเฉิน บทบาทของห้องปฏิบัติการพิษวิทยา การรักษา อาการที่เกิดจากยาเกินขนาดและสารพิษ

### 3. Thesis

Credits (Lecture-Practice-Self-study)

RAOT 698 Thesis

12(0-36-0)

รอมพ ๖๙๘ วิทยานิพนธ์

Selecting research topic areas in occupational health or toxicology; research proposal; conducting ethical research; data collection; data analysis and interpretation; research thesis writing; research thesis publication in academic journal; presentation in academic conferences; ethical dissemination of results

การคัดสรรหัวข้อวิจัยทางด้านอาชีวอนามัยหรือพิษวิทยา โครงร่างการวิจัย การดำเนินงานวิจัยอย่างมีจริยธรรมการวิจัย การเก็บรวบรวมข้อมูล การวิเคราะห์และแปลผลข้อมูล การนำผลงานวิจัยมาเรียบเรียงเป็นวิทยานิพนธ์ การเผยแพร่ผลงานวิจัยในวารสารหรือสิ่งตีพิมพ์ทางวิชาการที่เป็นมาตรฐาน การเสนอผลงานวิจัยต่อที่ประชุมวิชาการ จริยธรรมการเผยแพร่ผลงานวิชาการ

## Appendix B

### Curriculum Vitae of the Faculty in Charge of the Program

#### 1. Name-Surname Professor Winai Wananukul

Degree	Degree Name	Institute	Year of Graduation
Cer.	Clinical Pharmacology & Toxicology fellow,	University of Minnesota, Minnesota, USA.	1995
Dip.	The Thai Board of Internal Medicine	The Medical Council of Thailand	1990
M.D.	-	Mahidol University, Thailand	1984
B.Sc.	Medical Sciences	Mahidol University, Thailand	1982

#### Faculty/Institute/College

Ramathibodi Poison Center, Department of Medicine, Faculty of Medicine  
Ramathibodi Hospital, Mahidol University.

#### Interesting Research Topics or Specialties

1. Clinical pharmacology and toxicology
2. General Medicine

Academic work as not part of the study for degree certificate and published and disseminated in accordance with the stipulated criteria regarding academic rank appointment in five retrospective years \*

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
Published research work	Sriapha C, Trakulsrichai S, Tongpoo A, Pradoo A, Rittilert P, <b>Wananukul W.</b> Ther Clin Risk Manag. Acute Imidacloprid Poisoning in Thailand. 2020 Nov 10;16:1081-1088. doi: 10.2147/TCRM.S269161. eCollection 2020. PMID: 33204096	12/1	2020
Published research work	Trakulsrichai S, Chumvanichaya K, Sriapha C, Tongpoo A, <b>Wananukul W.</b> Ther Clin Risk Manag. Toad Poisoning:	12/1	2020

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
	Clinical Characteristics and Outcomes. 2020 Dec 16;16:1235-1241. doi: 10.2147/TCRM.S272863. eCollection 2020.PMID: 33363378		
Published research work	Pradoo A, Sriapha C, Trakulsrichai S, Tongpoo A, Kheiamsawang M, <b>Wananukul W.</b> Clinical Characteristics of Acalypha indica Poisoning. Int J Gen Med. 2020 Aug 25;13:539-545. doi: 10.2147/IJGM.S263199. eCollection 2020.PMID: 32943907	12/1	2020

#### Current Teaching Load

RAOT 602	Principle of Toxicology	3(3-0-6)
RAOT 614	Systemic and Clinical Toxicology in Occupational Medicine	2(2-0-4)
RAOT 619	Occupational Health and Toxicology Internship	1(0-2-1)
RAOT 698	Thesis	12(0-36-0)

#### Assigned Teaching Load for the Proposed Program

RAOT 602	Principle of Toxicology	3(3-0-6)
RAOT 614	Systemic and Clinical Toxicology in Occupational Medicine	2(2-0-4)
RAOT 619	Occupational Health and Toxicology Internship	1(0-2-1)
RAOT 698	Thesis	12(0-36-0)

## 2. Name-Surname Associate Professor Satariya Trakulsrichai

Degree	Degree Name	Institute	Year of Graduation
Dip.	Thai Board of Clinical Pharmacology and Toxicology	The Medical Council of Thailand	2012
Cer.	Academic Fellowship of Emergency Medicine	University of Florida, USA	2006
Dip.	Thai Board of Emergency Medicine	The Medical Council of Thailand	2004
Dip.	Thai Board of Internal Medicine	The Medical Council of Thailand	1997
M.D. (2 <sup>nd</sup> class honour),	-	Chulalongkorn University	1991

### Faculty/Institute/College

Department of Emergency Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

### Interesting Research Topics or Specialties

1. Natural toxin
2. Pesticides poisoning
3. Drugs poisoning

Academic work as not part of the study for degree certificate and published and disseminated in accordance with the stipulated criteria regarding academic rank appointment in five retrospective years \*

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
Published research work	Rittilert P, Sriapha C, Tongpoo A, Pradoo A, Wananukul W, <b>Trakulsrichai S.</b> Clinical characteristics, treatment and outcomes of acute propanil poisoning in a 7-year retrospective cohort study. Toxicology Reports. 2022: 1180–1188	12/1	2022
Published research work	Patikorn C, Ismail AK, Abidin SAZ, Blanco FB, Blessmann J, Choumlivong K,	12/1	2022

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
	Comandante JD, Doan UV, Mohamed Ismail Z, Khine YY, Maharani T, Nwe MT, Qamruddin RM, Saffer RS, Santamaria E, Tiglao PJG, <b>Trakulsrichai S</b> , Vasaruchapong T, Chaikunapruk N, Taychakhoonavudh S, Othman I. Situation of snakebite, antivenom market and access to antivenoms in ASEAN countries. BMJ Glob Health. 2022 Mar;7(3):e007639		
Published research work	Sathirapongsasuti N, Khonchom K, Poonsawat T, Pransilpa M, Ongsara S, Detsri U, Bungbai S, Lawanangkoon S.-a, Pattanaporkrattana W, <b>Trakulsrichai S</b> . Rapid and Accurate Species-Specific PCR for the Identification of Lethal Chironex Box Jellyfish in Thailand. Int. J. Environ. Res. Public Health 2021, 18, 219	12/1	2021

#### Current Teaching Load

RAOT 602	Principle of Toxicology	3(3-0-6)
RAOT 614	Systemic and Clinical Toxicology in Occupational Medicine	2(2-0-4)
RAOT 619	Occupational Health and Toxicology Internship	1(0-2-1)
RAOT 698	Thesis	12(0-36-0)

#### Assigned Teaching Load for the Proposed Program

RAOT 602	Principle of Toxicology	3(3-0-6)
RAOT 605	Seminar in Occupational Health and Toxicology	1(1-0-2)
RAOT 614	Systemic and Clinical Toxicology in Occupational Medicine	2(2-0-4)
RAOT 619	Occupational Health and Toxicology Internship	1(0-2-1)
RAOT 698	Thesis	12(0-36-0)

### 3. Name-Surname Assistant Professor Chathaya Wongrathanandha

Degree	Degree Name	Institute	Year of Graduation
Dip.	Thai Board of Preventive Medicine (Occupational Medicine)	The Medical Council of Thailand	2021
M.P.H.	Occupational and Environmental Health	Harvard University, USA.	2013
M.Sc.	Health Economics and Health Care Management	Chulalongkorn University	2012
Dip.	Thai Board of Family Medicine	The Medical Council of Thailand	2004
M.D. (Second class honors)	-	Chulalongkorn University	2001

#### Faculty/Institute/College

Department of Community Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

#### Interesting Research Topics or Specialties

1. Occupational Medicine
2. Occupational Health

Academic work as not part of the study for degree certificate and published and disseminated in accordance with the stipulated criteria regarding academic rank appointment in five retrospective years \*

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
Published research work	Krorakai K, Tontipattananon S, Leemahanil R, Klangphukhiew S, <b>Wongrathanandha C</b> , Phaibulpanich A, Patramanon R. Correlation of age and sex with urine dehydroepiandrosterone sulfate level in healthy Thai	12/1	2021

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
	volunteers. Pract Lab Med. 2021 Jan 18;24:e00204. doi: 10.1016/j.plabm. 2021. e00204. eCollection 2021 Mar.PMID: 33553553		
Published research work	Laithaisong T, Aekplakorn W, Suriyawongpaisal P, Tupthai C, <b>Wongrathanandha C.</b> The Prevalence and Risk Factors of Musculoskeletal Disorders among Subcontracted Hospital Cleaners in Thailand. Vol. ahead-of-print No. ahead-of-print. 2021. <a href="https://doi.org/10.1108/JHR-01-2021-0040">https://doi.org/10.1108/JHR-01-2021-0040</a> .	12/1	2021
Published research work	Witoonsut C, Aekplakorn W, Phaipayom N, <b>Wongrathanandha C.</b> The Relationship between Inpatient Nurse Burnout and Safety Outcomes in a Teaching Hospital, Thailand. <i>Chiang Mai Medical Journal.</i> 2021; 60(3): 325-34.	12/1	2021
Published research work	Tangchareonsamut J, <b>Wongrathanandha C,</b> Khamsee S, Aekplakorn W. Association of work performance with absenteeism and presenteeism among support workers in a medical school hospital, Thailand. <i>Journal of Health Research.</i> Vol. ahead-of-print No. ahead-of-print. 2021. <a href="https://doi.org/10.1108/JHR-01-2021-0045">https://doi.org/10.1108/JHR-01-2021-0045</a> .	12/1	2021
Published research work	Sidthipongsa S, Sasithornsonthi J, Aekplakorn W, <b>Wongrathanandha C,</b> Manonai J. Incidence, Related	12/1	2021



Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
	Factors, and Impacts of Workplace Violence among Nurses in a Medical School in Thailand. <i>Chiang Mai Medical Journal</i> . 2021; 60(4): 437-47.		

#### Current Teaching Load

RAOT 603	Occupational and Environmental Medicine	2(2-0-4)
RAOT 606	Practice in Occupational Health	2(1-2-3)
RAOT 617	Industrial Hygiene and Occupational Safety	2(2-0-4)
RAOT 609	Occupational Health and Safety Management	2(2-0-4)
RAOT 619	Occupational Health and Toxicology Internship	1(0-2-1)
RAOT 698	Thesis	12(0-36-0)

#### Assigned Teaching Load for the Proposed Program

RAOT 603	Occupational and Environmental Medicine	2(2-0-4)
RAOT 606	Practice in Occupational Health	2(1-2-3)
RAOT 617	Industrial Hygiene and Occupational Safety	2(2-0-4)
RAOT 609	Occupational Health and Safety Management	2(2-0-4)
RAOT 619	Occupational Health and Toxicology Internship	1(0-2-1)
RAOT 698	Thesis	12(0-36-0)

#### 4. Name Assistant Professor Dr. Doungrutai Buadong

##### Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Environmental Science	Chulalongkorn University	2009
M.Sc.	Environmental Science	Chulalongkorn University	1999
B.N.S.	Nursing Science	Mahidol University	1994

##### Faculty/Institute/College

School of Nursing Ramathibidi Hospital, Faculty of Medicine Ramathibidi Hospital, Mahidol University

##### Interesting Research Topics or Specialties

1. Environmental Science
2. Nursing care

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
Published research work	Thamruangrit S, Santati S, Granger J, <b>Buadong D</b> , Thongsri J. The Effect of a Child Model on Breath-Sounds Examination Skills and Satisfaction on Nursing Students. Healthcare. 2022; 10(7):1165. <a href="https://doi.org/10.3390/healthcare10071165">https://doi.org/10.3390/healthcare10071165</a>	12/1	2022
Published research work	Chaichomphoo S, Santati S, <b>Buadong D</b> . Randomized Controlled Trial of Acute Respiratory Infection Prevention Program among Children with Tonsil Enlargement. PRIJNR.	12/1	2022

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
	2022.26(1):54-66. (January-March 2022) ISSN (print): 1906-8107 ISSN (online): 2586-8373.		
Published research work	Punyoo J, Jongaramraung J, Daramas T, <b>Buadong D</b> , Singhasai L., Tunksakool J, Saehoong S, Panjatharakul P, Thungkaeorungrueang A. Factors Related to Perceived Self-Efficacy for COVID-19 Prevention in Pediatric Nursing Staff. Ramathibodi Nursing Journal, 2021.27(3), 415–429.	12/1	2021

**Current Teaching Load**

RAOT 609      Occupational Health and Safety Management      2 (2-0-4)

**Assigned Teaching Load for the Proposed Program**

RAOT 616      Occupational Health and Safety      2 (2-0-4)

**5. Name-Surname** Assistant Professor Dr. Suchinda Jarupat Maruo

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Life Science and Human Technology	Nara Women's University, Japan	2002
M.Sc.	Occupational Health and Safety	Mahidol University	1991
B.Sc.	Nursing	Mahidol University	1987

**Faculty/Institute/College**

Department of Occupational Health and Safety, Faculty of Public Health, Mahidol University

**Interesting Research Topics or Specialties**

1. Industrial Hygiene and Safety
2. Occupational Health Nursing
3. Environmental Health
4. Health Promotion

Academic work as not part of the study for degree certificate and published and disseminated in accordance with the stipulated criteria regarding academic rank appointment in five retrospective years \*

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
Published research work	Terasawa K, <b>Jarupat Maruo S</b> , Piasue N, Kalampakorn S, Utthiya P, Sasimonthonkul S, et al. The effectiveness of a health promotion program using the International Organization for standardization in Klongyong and Nikhompattana, Thailand. Asian J Pharm Clin Res 2020; 13(3) , DOI: <a href="https://doi.org/10.22159/ajpcr.2020.v13i3.36506">10.22159/ajpcr.2020.v13i3.36506</a>	12/1	2020
Published	Fujimori S, <b>Jarupat Maruo S</b> , Watanabe T,	12/1	2020

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
research work	Taki N, Sasamori F, Kobayashi K, et al. Effectiveness of a Japanese-style health program in Minowa Town, Matsumoto city and Nagano city, Japan. Int J Hum Rights Health c 2020; 13(4):347-63.		
Published research work	Piaseu N, Boonsiri C, Panichkul K, <b>Jarupat Maruo S</b> , Putwatana P, Kantachuvesiri S. Effects of program promoting food consumption for sodium reduction on knowledge, sodium consumption behaviors, and urinary sodium in nursing students: a multi-setting study. BKK Med J 2020; 16(1):44-49.	12/1	2020

#### Current Teaching Load

RAOT 605	Seminar in Occupational Health and Toxicology	1(1-0-2)
RAOT 606	Practice in Occupational Health	2(1-2-3)
RAOT 619	Occupational Health and Toxicology Internship	1(0-2-1)
RAOT 698	Thesis	12(0-36-0)

#### Assigned Teaching Load for the Proposed Program

RAOT 605	Seminar in Occupational Health and Toxicology	
RAOT 606	Practice in Occupational Health	2(2-0-4)
RAOT 619	Occupational Health and Toxicology Internship	1(0-2-1)
RAOT 698	Thesis	12(0-36-0)

**6. Name-Surname** Assistant Professor Sahaphume Srisuma

Degree	Degree Name	Institute	Year of Graduation
Cer.	Certificate of Achievement Knowledge for Successful Completion of Fellowship Training in Medical Toxicology	Rocky Mountain Poison and Drug Center, USA	2015
Dip.	Thai Board of Medicine	The Medical Council of Thailand	2012
M.D.	-	Mahidol University	2008

**Faculty/Institute/College**

Department of Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

**Interesting Research Topics or Specialties**

1. Poison center Data and Toxixcogilance
2. Drug Interaction
3. Substance of abuse

Academic work as not part of the study for degree certificate and published and disseminated in accordance with the stipulated criteria regarding academic rank appointment in five retrospective years \*

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
Published research work	Sriapha C, Rittilert P, Vasaruchapong T, <b>Srisuma S</b> , Wananukul W, Trakulsrichai S. Early Adverse Reactions to Snake Antivenom: Poison Center Data Analysis. Toxins (Basel). 2022 Oct 9;14(10):694. doi: 10.3390/toxins14100694.PMID: 36287963	12/1	2022
Published research work	Ruangritchankul S, Chantharit P, <b>Srisuma S</b> , Gray LC. Adverse Drug Reactions of Acetylcholinesterase Inhibitors in	12/1	2021

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
	Older People Living with Dementia: A Comprehensive Literature Review. Ther Clin Risk Manag. 2021 Sep 4;17:927-949. doi: 10.2147/TCRM.S323387. eCollection 2021. PMID: 34511919		
Published research work	Zinboonyahgoon N, <b>Srisuma S</b> , Limsawart W, Rice ASC, Suthisisang C. Pain. Medicinal cannabis in Thailand: 1-year experience after legalization. 2021 Jul 1;162(Suppl 1):S105-S109. doi: 10.1097/j.pain.0000000000001936. PMID: 33009244	12/1	2021

#### Current Teaching Load

RAOT 602	Principle of Toxicology	3(3-0-6)
RAOT 605	Seminar in Occupational Health and Toxicology	1(1-0-2)
RAOT 614	Systemic and Clinical Toxicology in Occupational Medicine	2(2-0-4)
RAOT 619	Occupational Health and Toxicology Internship	1(0-2-1)
RAOT 698	Thesis	12(0-36-0)

#### Assigned Teaching Load for the Proposed Program

RAOT 602	Principle of Toxicology	3(3-0-6)
RAOT 605	Seminar in Occupational Health and Toxicology	1(1-0-2)
RAOT 614	Systemic and Clinical Toxicology in Occupational Medicine	2(2-0-4)
RAOT 619	Occupational Health and Toxicology Internship	1(0-2-1)
RAOT 698	Thesis	12(0-36-0)

## 7. Name-Surname Assistant Professor Dr. Wanna Sanongdej

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Nursing	Mahidol University	2015
M.Sc.	Public Health	Mahidol University	2003
B.Sc.	Nursing	Mahidol University	1989

### Faculty/Institute/College

School of Nursing Ramathibidi Hospital, Faculty of Medicine Ramathibidi Hospital, Mahidol University

### Interesting Research Topics or Specialties

1. Occupational Health
2. Developing measurement
3. Community health

Academic work as not part of the study for degree certificate and published and disseminated in accordance with the stipulated criteria regarding academic rank appointment in five retrospective years \*

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
Published research work	<b>Sanongdej W</b> , Tantiprasoplap S, Keawpugdee J,& Wannapiroon P. A Blended Learning Develops the Basic Physical Exam Practice Skills for Nursing Student. Archives in Neurology & Neuroscience, 2022 March 17: 12(3),1-8.	12/1	2022
Published research work	<b>Sanongdej W</b> , Chongthammakun S, Songthaveesin C. Nutrient starvation induces apoptosis and autophagy in C6 glioma stem-like cells. Heliyon. 2021 Feb	12/1	2021



Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
	26;7(2):e06352. doi: 10.1016/j.heliyon.2021.e06352. eCollection 2021 Feb.PMID: 33718649		
Published research work	Narasri P, Tantiprasoplap S, Mekwiwatanawong C, <b>Sanongdej W</b> , Piaseu N. Management of food insecurity in the COVID-19 pandemic: a model of sustainable community development. Health Care Women Int. 2020 Nov-Dec;41(11-12):1363-1369. doi: 10.1080/07399332.2020. 1823984. Epub 2020 Sep 23. PMID : 32966171	12/1	2020

**Current Teaching Load**

RAOT 606	Practice in Occupational Health	2(1-2-3)
RAOT 609	Occupational Health and Safety Management	2(2-0-4)
RAOT 619	Occupational Health and Toxicology Internship	1(0-2-1)
RAOT 698	Thesis	12(0-36-0)

**Assigned Teaching Load for the Proposed Program**

RAOT 606	Practice in Occupational Health	2(1-2-3)
RAOT 609	Occupational Health and Safety Management	2(2-0-4)
RAOT 619	Occupational Health and Toxicology Internship	1(0-2-1)
RAOT 698	Thesis	12(0-36-0)

**8. Name-Surname** Lecturer Dr. Jakris Eu-ahsunthornwattana

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Statistical Genetics	Newcastle University, UK	2015
M.Sc.	Epidemiology: Principles and Practice	University of London, UK	2005
M.D.			
(First class honours)	Doctor of Medicine	Mahidol University	1999

**Faculty/Institute/College**

Department of Community Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

**Interesting Research Topics or Specialties**

1. Statistical Genetics
2. Genetic Epidemiology
3. Methodology in Epidemiology and Biostatistics
4. Medical Genetics

Academic work as not part of the study for degree certificate and published and disseminated in accordance with the stipulated criteria regarding academic rank appointment in five retrospective years \*

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
Published research work	Tim-Aroon T, Wichajarn K, Katanyuwong K, Tanpaiboon P, Vatanavicharn N, Sakpichaisakul K, Kongkrapan A, <b>Eu-Ahsunthornwattana J</b> , Thongpradit S, Moolsuwan K, Satproedprai N, Mahasirimongkol S, Lerksuthirat T, Suktitipat B, Jinawath N, Wattanasirichaigoon D. Infantile onset	12/1	2021

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
	Sandhoff disease: clinical manifestation and a novel common mutation in Thai patients. BMC Pediatr. 2021 Jan 7;21(1):22. doi: 10.1186/s12887-020-02481-3.PMID: 33407268		
Published research work	Udomkittivorakul N, Sasanakul W, <b>Eu-Ahsunthornwattana J</b> , Chuansumrit A, Komwilaisak P, Songdej D, Sirachainan N.Clin Appl Thromb Hemost. 2020 Jan-Dec;26:1076029620935206. doi: 10.1177/1076029620935206.PMID: 32609543	12/1	2020
Published academic articles	Chanrat E, <b>Eu-ahsunthornwattana J</b> , Thotsiri S, Sathirapongsasuti N. POS-434 The Protective Effect of UMOD Single Nucleotide Polymorphisms (SNPs) rs12917707 on the Risk of Kidney Failure. Research Gate, Kidney International Reports. February 2022 7(2):S193	12/1	2022

### Current Teaching Load

RAOT 604	Principle of Occupational Epidemiology	3(3-0-6)
RAOT 608	Human Genetic and Biomonitoring in Occupational Health	1(1-0-2)
RAOT 612	Approach to Genetic Association in Health and Toxic Substance	1(1-0-2)
RAOT 613	Scientific Writing, Refereeing and Appraisal	1(1-0-2)
RAOT 620	Occupational Health and Toxicology Internship	1(0-2-1)
RAOT 698	Thesis	12(0-36-0)

**Assigned Teaching Load for the Proposed Program**

RAOT 604	Principle of Occupational Epidemiology	3(3-0-6)
RAOT 608	Human Genetic and Biomonitoring in Occupational Health	1(1-0-2)
RAOT 612	Approach to Genetic Association in Health and Toxic Substance	1(1-0-2)
RAOT 613	Scientific Writing, Refereeing and Appraisal	1(1-0-2)
RAOT 620	Occupational Health and Toxicology Internship	1(0-2-1)
RAOT 698	Thesis	12(0-36-0)

## 9. Name-Surname Lecturer Warisa Soonthornvinit

Degree	Degree Name	Institute	Year of Graduation
B.Sc.	Occupational Health Safety	Sukhothai Thammathirat	2021
Dip.	Thai Board of Preventive Medicine, Occupational Medicine	The Medical Council of Thailand	2018
M.Sc.	Occupational Medicine	Khon Kaen University	2018
M.D.	Doctor of Medicine	Khon Kaen University	2014

### Faculty/Institute/College

Department of Community Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

### Interesting Research Topics or Specialties

1. Occupational Medicine
2. Occupational Health

Academic work as not part of the study for degree certificate and published and disseminated in accordance with the stipulated criteria regarding academic rank appointment in five retrospective years \*

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
Published research work	Visuttranukul P, Songserm P, Nakdee P, Kuttiyawong W, Chinwanitjaroen S, Sirirak S, Boonjaraspinyo S, <b>Soonthornvinit W</b> . Proportion of Registered Nurses with Adequate Knowledge about Mandatory Vaccination for Healthcare Personnel in Srinagarind Hospital. Khon Kaen University Hospital Journal. July - September 2022: 276-291 Volume 3 No.3	12/1	2022

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
Published research work	Wipahut K, <b>Soonthornvinit W</b> , Chaiear N. Proportion of Hepatitis B virus, Measles, and Varicella Immunity Among New Healthcare Personnel at Faculty of Medicine Khon Kaen University, Thailand. Srinagarind Medicine Journal 2023. 12 April 2023: 38(2)	12/1	2023
Published research work	<b>Soonthornvinit W</b> . The Prevalence of Hypertension in Factory Employees, Detected During The Periodic Examination at The Factory. Journal of Hypertension. January 2023: PS-P12-8 41(Suppl 1):p e493	12/1	2023
Published research work	Wipahut K, Chaiear N, Boonjaraspinyo S, Kongbunkiat K, Tiamkao S, Soonthornvinit W. Proportion of Non-severe Ischemic Stroke Patients Returning to Work. Biomedical Sciences and Clinical Medicine (BSCM) Chiang Mai University Faculty of Medicine. April-June 2023: Vol. 62 No. 2 doi: 10.12982/BSCM.2023.05	12/1	2023

### Current Teaching Load

RAOT 606	Practice in Occupational Health	2(1-2-3)
RAOT 613	Scientific Writing, Refereeing and Appraisal	1(1-0-2)
RAOT 616	Occupational and Environmental Medicine	2(2-0-4)
RAOT 617	Industrial Hygiene and Occupational Safety	2(2-0-4)
RAOT 619	Occupational Health and Toxicology Internship	1(0-2-1)
RAOT 698	Thesis	12(0-36-0)

**Assigned Teaching Load for the Proposed Program**

RAOT 606	Practice in Occupational Health	2(1-2-3)
RAOT 613	Scientific Writing, Refereeing and Appraisal	1(1-0-2)
RAOT 616	Occupational and Environmental Medicine	2(2-0-4)
RAOT 617	Industrial Hygiene and Occupational Safety	2(2-0-4)
RAOT 619	Occupational Health and Toxicology Internship	1(0-2-1)
RAOT 698	Thesis	12(0-36-0)

### Full time instructors

**1. Name** Associate Professor Thanyachai Sura

#### Education

Degree	Degree Name	Institute	Year of Graduation
Cer.	Membership	The Royal Colleges of Physicians, London, UK.	1991
Cer.	Medical Genetics and Molecular Medicine	Oxford University, England	1990
Dip.	Registra at Institute of molecular medicine	Oxford University, England	1989
Dip.	Diploma of the Thai Board of Internal Medicine	The Medical Council of Thailand	1987
M.D.		Mahidol University	1980

#### Faculty/Institute/College

Medical Genetics and Molecular Medicine unit, Department of Medicine, Faculty of Medicine, Ramathibodi Hospital, Mahidol University

#### Interesting Research Topics or Specialties

1. Statistical Genetics
2. Genetic Epidemiology
3. Methodology in Epidemiology and Biostatistics
4. Medical Genetics

Academic work as not part of the study for degree certificate and published and disseminated in accordance with the stipulated criteria regarding academic rank appointment in five retrospective years \*

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
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Published research work	<b>Sura T</b> , Surabhi S, Maaß S, Hammerschmidt S, Siemens N, Becher D.J Proteomics. The global proteome and ubiquitinome of bacterial and viral co-infected bronchial epithelial cells. 2022 Jan 6;250:104387. doi: 10.1016/j.jprot.2021.104387. Epub 2021 Sep 30.PMID: 34600154	12/1	2022
Published research work	Orlino JP, <b>Sura T</b> Pei KY, Smeds MR.J Vasc Surg. Bullying in Vascular Surgery Trainees. 2022 Feb 8:S0741-5214(22)00239-7. doi: 10.1016/j.jvs.2022.01.123. Online ahead of print. PMID: 35149159	12/1	2021
Published research work	Kainth AS, <b>Sura T</b> , Williams MS, Wittgen C, Zakhary E, Smeds MR; GREAT Participants.J Vasc Surg. Outcomes after endovascular reintervention for aortic interventions. 2022 Mar;75(3):877-883.e2. doi: 10.1016/j.jvs.2021.08.090. Epub 2021 Sep 28.PMID: 34592379	12/1	2021

### Current Teaching Load

RAOT 608      Human Genetic and Biomonitoring in Occupational Health      1(1-0-2)

### Assigned Teaching Load for the Proposed Program

RAOT 608      Human Genetic and Biomonitoring in Occupational Health      1(1-0-2)

## 2. Name Assistant Professor Chaturon Tangsangwornthamma

### Education

Degree	Degree Name	Institute	Year of Graduation
M.Sc.	Occupational and Environmental Medicine, Public Health	Icahn school of Medicine at Mount Sinai, USA.	2017
Dip.	Diploma of the Thai Board of Family Medicine,	The Medical Council of Thailand	2008
M.D.		Srinakarindwirot University,	2003

### Faculty/Institute/College

Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital, Mahidol University

### Interesting Research Topics or Specialties

1. Family Medicine
2. Occupational Health

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
Published research work	Khiaw-Im N, Aimyong N, Wongrathanandha C, <b>Tangsangwornthamma C</b> , Cross-Cultural Adaptation, Reliability, and Content Validity of Thai Version of Workplace Violence in the Health Sector Country Case Study Questionnaire, Sage Journals, First published online October 28, 2022: <a href="https://doi.org/10.1177/21501319221132448">https://doi.org/10.1177/21501319221132448</a>	12/1	2022

### Current Teaching Load

RAOT 616 Occupational Health and Safety

2 (2-0-4)

RAOT 619	Occupational Health and Toxicology Internship	1 (0-2-1)
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**Assigned Teaching Load for the Proposed Program**

RAOT 616	Occupational Health and Safety	2 (2-0-4)
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RAOT 619	Occupational Health and Toxicology Internship	1 (0-2-1)
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### 3. Name Assistant Professor Dr. Donniphat Dejsuphong

#### Education

Degree	Degree Name	Institute	Year of Graduation
Postdoc Fellow	Dana-Farber Cancer Institute	Harvard Medical School, USA.	2012
Ph.D.	Doctor of Medical Science,	Graduate School of Medicine, Kyoto University, Japan	2009
M.D.		Mahidol University	2001

#### Faculty/Institute/College

Department of Medicine, Faculty of medicine Ramathibodi Hospital, Mahidol University

#### Interesting Research Topics or Specialties

1. Statistical Genetics
2. Genetic Epidemiology
3. Methodology in Epidemiology and Biostatistics
4. Medical Genetics

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
Published research work	Lerksuthirat T, Wikiniyadhanee R, Chitphuk S, Stitchantrakul W, Sampattavanich S, Jirawatnotai S, Jumpathong J, <b>Dejsuphong D.</b> DNA Repair Biosensor-Identified DNA Damage Activities of Endophyte Extracts from <i>Garcinia cowa</i> . <i>Biomolecules</i> . 2020 Dec 16;10(12):1680. doi: 10.3390/biom10121680.PMID: 3333918	12/1	2020

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
Published research work	Wikiniyadhanee R, Lerksuthirat T, Stitchantrakul W, Chitphuk S, Sura T, <b>Dejsuphong D</b> . TRIM29 is required for efficient recruitment of 53BP1 in response to DNA double-strand breaks in vertebrate cells. FEBS Open Bio. 2020 Oct;10(10): 2055-2071. doi: 10.1002/2211-5463.12954. PMID: 33017104	12/1	2020

#### Current Teaching Load

RAOT 608	Human Genetic and Biomonitoring in Occupational Health	1(1-0-2)
RAOT 698	Thesis	12(0-36-0)

#### Assigned Teaching Load for the Proposed Program

RAOT 608	Human Genetic and Biomonitoring in Occupational Health	1(1-0-2)
RAOT 698	Thesis	12(0-36-0)

### Part Time Instructor

**1. Name-Surname** Professor Dr. Wichai Aekplakorn

Degree	Degree Name	Institute	Year of Graduation
Dip.	Thai Board of Family Medicine	The Medical Council of Thailand	2003
Ph.D.	Epidemiology	The University of North Carolina at Chapel Hill, USA.	2001
Dip.	Thai Board of Preventive Medicine, Occupational Medicine	The Medical Council of Thailand	1996
M.Sc.	Occupational Medicine	National University of Singapore	1992
Dip.	Thai Board of Preventive Medicine, Clinical Preventive Medicine	The Medical Council of Thailand	1988
M.D.	-	Mahidol University	1982

#### Faculty/Institute/College

Department of Community Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

#### Interesting Research Topics or Specialties

1. Epidemiology
2. Surveillance

Academic work as not part of the study for degree certificate and published and disseminated in accordance with the stipulated criteria regarding academic rank appointment in five retrospective years \*

Types of Academic Work	Title	Standard Criteria and Weights	Year of Publication
Published research work	Bryant J, Rittirong J, <b>Aekplakorn W</b> , Mo-Suwan L, Nithara P. A Bayesian approach to combining multiple information sources: Estimating and forecasting childhood obesity in Thailand. PloS One. 2022 Jan 21; 17(1):e0262047	12/1	2022
Published research work	Saputro SA, Pattanateepapon A, Pattanapratchee O, <b>Aekplakorn W</b> , McKay GJ, Attia J, Thakkestian A. External validation of prognostic models for chronic kidney disease among type 2 diabetes. J Nephrol. 2022 Jul;35(6):1637-1653. doi: 10.1007/s40620-021-01220-w	12/1	2022
Published research work	Sonuch P, Kantachavesiri S, Vathesatogkit P, Lappichetpaiboon R, Chailimpamontri W, Thokanit NS, <b>Aekplakorn W</b> . Estimation of sodium consumption by novel formulas derived from random spot and 12-hour urine collection. PloS One. 2021 Dec 2;16(12):e0260408	12/1	2021
Published research work	<b>Aekplakorn W</b> , Chariyalertsak S, Kessomboon P, Assanangkornchai S, Taneepanichskul S, Neelapaichit N, Chittamma A, Kitiyakara C. Women and other risk factors for chronic kidney disease of unknown etiology in Thailand: National Health Examination V Survey. Sci Rep. 2021 Nov 1;11(1):21366	12/1	2021

**Current Teaching Load**

RAOT 604	Principle of Occupational Epidemiology	3(3-0-6)
RAOT 613	Research Proposal and Scientific Writing	1(1-0-2)
RAOT 619	Occupational Health and Toxicology Internship	1(0-2-1)
RAOT 698	Thesis	12(0-36-0)

**Assigned Teaching Load for the Proposed Program**

RAOT 604	Principle of Occupational Epidemiology	3(3-0-6)
RAOT 613	Research Proposal and Scientific Writing	1(1-0-2)
RAOT 619	Occupational Health and Toxicology Internship	1(1-0-2)
RAOT 698	Thesis	12(0-36-0)

And the administrative program committee will invite part time instructors to teach the special topics in courses. The candidates shall have experience or degree(s) relevant to the requirement of the program.



### Appendix C Curriculum Mapping

● Major responsibility      ○ Minor responsibility

Subjects	Knowledge		Skills			Ethics			Character		
	1	2	1	2	3	1	2	3	1	2	3
<b>1) Required Courses</b>											
RAOT 602 Principle of Toxicology	○	●	●	●	○	●	●	○	○	○	○
RAOT 604 Principle of Occupational Health Epidemiology	●	●	●	●	○	●	○	●	○	●	●
RAOT 605 Seminar in Occupational Health and Toxicology	●	●	●	●	○	●	●	●	●	●	○
RAOT 606 Practice in Occupational Health	●	●	○	○	●	●	●	●	○	●	○
RAOT 608 Human Genetic and Biomonitoring in Occupational Health	●	○	●	●	○	●	●	○	○	●	●
RAOT 609 Occupational Health and Safety Management	●	○	○	●	●	○	○	●	●	○	●
RAOT 613 Research Proposal and Scientific Writing	●	●	●	●	○	●	○	●	○	○	●
RAOT 614 Systemic and Clinical Toxicology in Occupational Medicine	●	●	●	○	○	●	●	○	○	●	●
RAOT 616 Occupational Health and Safety	●	●	●	●	○	●	●	○	●	○	○
RAOT 617 Introduction to Industrial Hygiene	●	○	○	●	●	●	●	●	●	●	○
RAOT 618 Occupational and Environmental Medicine	●	○	●	●	○	●	●	○	●	○	○
RAOT 619 Occupational Health and Toxicology Internship	○	●	●	●	●	●	●	●	●	●	●
<b>2) Elective Courses</b>											
RAOT 611 Special Topics in Occupational Health and Toxicology	●	●	○	●	●	●	●	●	●	●	○

[illegible]

Table of Relationship between Learning Outcomes of the Program and Core Value of Mahidol University

Learning Outcomes (as stated in Section 5, item no. 2)	Core value of Mahidol University
<b>1. Knowledge</b>	
1.1 Understand the principles and theories of occupational health, toxicology, epidemiology and biostatistics, research methodology, human genetics and critical appraisal of research articles	Originality
1.2 Systematically apply the integrated knowledge in occupational health, toxicology and related fields	Mastery, Originality
<b>2. Skills</b>	
2.1 Master the process of data collection and appraisal	Mastery, Originality
2.2 Effectively assess health risk and solve problems related to occupational health and toxic substance	Mastery, Originality
2.3 Apply academic and research content or experiences in occupational health and toxicology, and related subjects to conduct the research using statistical methods and responds to the problem in a real situation select and use statistical methods to analyze data appropriately	Mastery, Determination, Originality
<b>3. Ethics</b>	
3.1 Have academic integrity in research, collecting and presenting data	Integrity
3.2 Behave ethically academic and professional	Integrity
3.3 Have discipline, punctuality and respect for the rules or regulations	Altruism, Integrity
<b>4. Character</b>	
4.1 Have a responsibility to self, others a good relationship with colleagues in other organizations	Harmony
4.2 Have the characteristics of a good leader, follower and teamwork	Harmony, Leadership
4.3 Communicate by reading, listening, writing, and using information technology appropriately	Mastery, Harmony

## Appendix D

### Program Learning Outcomes

**Table 1: Comparison between before and after revised objective of the program**

Objective of the Program 2019	Revised Objective of the Program 2024
<p>Master of Science Program in Occupational Health and Toxicology has been designed to provide the graduates who have the ability to</p> <p>1. adhere to moral standards, academic and professional ethics.</p>	<p>Master of Science Program in Occupational Health and Toxicology has been designed to provide the graduates who have the ability to</p> <p>1. Apply knowledge, concept, theory related to occupational health and toxicology and engage self-directed learning.</p>
<p>2. apply knowledge, concept, theory related to occupational health and toxicology and engage self-directed learning.</p>	<p>2. Analyze and formulate solution to the health problems related to occupational health and toxicology using the evidence-based practice; appriase research works; design and conduct occupational health researches using appropriate and ethical process.</p>
<p>3. analyze and formulate solution to the health problems related to occupational health and toxicology using the evidence based practice; appriase research works; design and conduct occupational health researches using appropriate and ethical process.</p>	<p>3. Adhere to moral standards, academic and professional ethics.</p>
<p>4. demonstrate self responsibility, cooperate effectively with others and exercise leadership skills where appropriate.</p>	<p>4. Demonstrate self responsibility, cooperate effectively with others and exercise leadership skills where appropriate and use of information technology for self-study, presentation and effective communication to all target audiences.</p>
<p>5.demonstrate effective use of mathematical</p>	

Objective of the Program 2019	Revised Objective of the Program 2024
and statistical data, and use of information technology for self-study, presentation and effective communication to all target audiences.	

**Table 2: Relationship between objective of the program and program learning outcome**

Objectives of the Program	Program Learning Outcomes *			
	PLO1	PLO2	PLO3	PLO4
1. Apply knowledge, concept, theory related to occupational health and toxicology and engage self-directed learning.	✓			
2. Analyze and formulate solution to the health problems related to occupational health and toxicology using the evidence-based practice; appraise research works; design and conduct occupational health researches using appropriate and ethical process.		✓		
3. Adhere to moral standards, academic and professional ethics.			✓	
4. Demonstrate self responsibility, cooperate effectively with others and exercise leadership skills where appropriate and use of information technology for self-study, presentation and effective communication to all target audiences.				✓

**\* Program learning outcomes**

PLO1 Integrate principles and theories related to occupational health and toxicology into reality and practices and seek a way to improve knowledge continually and regularly.

PLO2 Perform health risk assessment in diverse occupational situations using statistical analysis, critical thinking, and evidence-based practices, as well as. Conduct relevant occupational health researches.

PLO3 Demonstrate moral and ethical values in occupational health and toxicology practice and research.

PLO4 Demonstrate good communication skills and information technology skills as well as leadership and teamwork in occupational health multidisciplinary team.

**Table 3: Standard domains of learning outcome and Program Learning Outcomes**

Domains	Standard Learning Outcomes	Program Learning Outcomes			
		PLO1	PLO2	PLO3	PLO4
Knowledge	1.1 Understand the principles and theories of occupational health, toxicology, epidemiology and biostatistics, research methodology, human genetics and critical appraisal of research articles.	√			
	1.2 Systematically apply the integrated knowledge in occupational health, toxicology and related fields.	√			
Skills	2.1 Master the process of data collection and appraisal.		√		
	2.2 Effectively assess health risk and solve problems related to occupational health and toxic Substance.		√		
	2.3 Apply academic and research content or experiences in occupational health and toxicology, and related subjects to conduct the research using statistical methods and responds to the problem in a real situation select and use statistical methods to analyze data appropriately.		√		
Ethics	3.1 Have academic integrity in research, collecting and presenting data.			√	

Domains	Standard Learning Outcomes	Program Learning Outcomes			
		PLO1	PLO2	PLO3	PLO4
	3.2 Behave ethically academic and professional.			√	
	3.3 Have discipline, punctuality and respect for the rules or regulations.			√	
Character	4.1 Have a responsibility to self, others a good relationship with colleagues in other organizations				√
	4.2 Have the characteristics of a good leader, follower and teamwork.				√
	4.3 Communicate by reading, listening, writing, and using information technology appropriately.				√

**Table 4: Learning and Assessment Strategies for Program Learning Outcomes Evaluation**

PLOs	Learning methods	Assessment
<b>PLO1</b> Integrate principles and theories related to occupational health and toxicology into reality and practices and seek a way to improve knowledge continually and regularly.	Lecture and discussion Assignment (group/ individual) Case studies Exercise Demonstration practicum Self-directed research	Direct observation - Punctuality, attendance - Critique - Class participation Work assignment - Report - Discussion - Presentation - Case discussion and presentation - Proposal and skeletal manuscript - Article appraisal Examination
<b>PLO2</b> Perform health risk assessment in diverse occupational situations using	Lecture and discussion Assignment (group/ individual)	Direct observation - Punctuality, attendance - Critique

PLOs	Learning methods	Assessment
<p>statistical analysis, critical thinking, and evidence-based practices, as well as. Conduct relevant occupational health researches.</p> <p><b>PLO3</b> Demonstrate moral and ethical values in occupational health and toxicology practice and research.</p> <p><b>PLO4</b> Demonstrate good communication skills and information technology skills as well as leadership and teamwork in occupational health multidisciplinary team.</p>	<p>Case studies</p> <p>Exercise</p> <p>Demonstration practicum</p> <p>Self-directed research</p> <p>Seminar and discussion</p> <p>Problem solving</p> <p>Online learning activity</p> <p>Field survey, field visit</p> <p>Second year- Semester 1</p> <p>Research thesis project (Student's activities under the guidance and supervision of the advisor)</p> <p>- Preparation and defense of thesis paper proposal</p> <p>- Conducting thesis research</p> <p>- Presentation and discussion work in progress</p> <p>- Response and engagement with commentary and critique</p> <p>Second year- Semester 2</p> <p>- Thesis research writing</p> <p>- Thesis defense in the presence of experts</p> <p>- Publishing thesis for graduation</p>	<p>- Class participation</p> <p>- Active performance during seminars</p> <p>Work assignment</p> <p>- Report</p> <p>- Discussion</p> <p>- Presentation</p> <p>- Case discussion and presentation</p> <p>Examination</p> <p>Survey analysis report, presentation, team discussion</p> <p>Second year- Semester 1</p> <p>Thesis paper proposal defense examination</p> <p>Assessment of the thesis research performance and progress report</p> <p>Second year- Semester 2</p> <p>- Thesis research report</p> <p>- Defense evaluation</p> <p>Assess ability in conducting research for thesis, research content, presentation and answering questions</p> <p>- Published documents or Proceedings of academic conference</p>



**Table 5: Relationship between Courses of the Program and Program Learning Outcomes**

Code	Name	Credits	PLOs			
			1	2	3	4
Required Courses						
RAOT 602	Principle of Toxicology	3(3-0-6)	I	R	I	I
RAOT 604	Principle of Occupational Epidemiology	3(3-0-6)	R	R	R	I
RAOT 609	Occupational Health and Safety Management	2(2-0-4)	I	R	I	R
RAOT 614	Systemic and Clinical Toxicology in Occupational Medicine	2(2-0-4)	R	R	R	I
RAOT 616	Occupational Health and Safety	2 (2-0-4)	I	R	R	R
RAOT 618	Occupational and Environmental Medicine	2 (2-0-4)	I	R	R	I
RAOT 605	Seminar in Occupational Health and Toxicology	1(1-0-2)	R	R	P	R
RAOT 606	Practice in Occupational Health	2(1-2-3)	R	R	P	I
RAOT 608	Human Genetic and Biomonitoring in Occupational Health	1(1-0-2)	R	R	R	I
RAOT 613	Research Proposal and Scientific Writing	1(1-0-2)	R	R	I	R
RAOT 617	Introduction to Industrial Hygine	2(2-0-4)	I	R	R	R
RAOT 619	Occupational Health and Toxicology Internship	1(0-2-1)	R	R	R	R
Elective Couses						
RAOT 611	Special Topics in Occupational Health and Toxicology	1(1-0-2)	R	R	R	R
RAOT 612	Approach to Genetic Association in Health and Toxic Substance	1(1-0-2)	R	R	I	I
RAOT 615	Assessment of Human Exposure to Environmental Pollution	2(2-0-4)	R	R	I	I
RACE 607	Clinical Economics	3(2-2-5)	R	I	I	R
RACE 618	Systematic Review and Meta-Analysis	3(1-4-4)	R	R	I	R
RACE 624	Research Informatics and Data Management	3(2-2-5)	R	R	I	R
RACE 625	Medical statistics for clinical Research	3(2-2-5)	R	R	I	R
RACE 626	Advanced Statistical Analysis in Clinical Research	3(2-2-5)	R	R	I	R
SCTX 633	Clinical Toxicology	2(2-0-4)	R	R	R	I
RAOT 698	Thesis	12(0-36-12)	M	M	M	M

I = ELO is introduced &amp; assessed

P = ELO is practiced &amp; assessed

R = ELO is reinforced &amp; assessed

M = Level of Mastery is assessed

Table 6: The expectation of learning outcomes at the end of the academic year

Year of study	Knowledge, skills, and any other expected learning outcomes	PLO
1 <sup>st</sup>	1. Integrate principles and theories related to occupational health and toxicology into reality and practices and seek a way to improve knowledge continually and regularly. 2. Perform health risk assessment in diverse occupational situations using statistical analysis, critical thinking, and evidence-based practices, as well as. Conduct relevant occupational health researches. 3. Demonstrate moral and ethical values in occupational health and toxicology practice and research. 4. Demonstrate good communication skills and information technology skills as well as leadership and teamwork in occupational health multidisciplinary team.	PLO1, PLO2
2 <sup>nd</sup>	1. Integrate principles and theories related to occupational health and toxicology into reality and practices and seek a way to improve knowledge continually and regularly. 2. Perform health risk assessment in diverse occupational situations using statistical analysis, critical thinking, and evidence-based practices, as well as. Conduct relevant occupational health researches. 3. Demonstrate moral and ethical values in occupational health and toxicology practice and research. 4. Demonstrate good communication skills and information technology skills as well as leadership and teamwork in occupational health multidisciplinary team.	PLO1, PLO3, PLO4

**Remarks:**

1. Identify year of study, e.g., 2-year master's degree programs: identify both 1st and 2nd year of study
2. Explain in detail (each year of study) what learning outcomes students are expected to achieve at the end of the academic year

**Appendix E**  
**(For only Revised Curriculum)**  
**The Revision of Master of Science Program**  
**in Occupational Health and Toxicology (International Program) Volume 2019**  
**Faculty Medicine Ramathibodi Hospital**  
**and Faculty of Graduate Studies, Mahidol University**

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1. The Curriculum was approved by the Office of the Higher Education Commission on .....
2. The Mahidol University Council has approved this revised curriculum in the 596..... meeting on September 20, 2023.....
3. The revised curriculum will be effective with student class Master's degree from the 1<sup>st</sup> semester of the Academic Year 2024 onwards.
4. **Rationale of revision**
  - 4.1 This Curriculum is revised to be in accordance with the Criteria and Standards of Graduate Degree Program B.E. 2565
  - 4.2 Review the program and course structures to ensure they are relevant and up-to-date.
  - 4.3 Adjustment of the required courses of curriculum according to the advice of experts.

**5. The details of the revision**

5.1 Full time instructors of the curriculum

No.	Instructor team of program 2019	Instructor team of revised program 2024
1.	Professor Dr. Wichai Aekplakorn	-
2	Professor Winai Wananukul	Professor Winai Wananukul
3.	-	Associate Professor Satariya Trakulsrichai
4.	Assistant Professor Chathaya Wongrathanandha	Assistant Professor Chathaya Wongrathanandha
5.	-	Assistant Professor Dr. Doungrutai Buadong
6.	Assistant Professor Dr. Suchinda Jarupat Maruo	-
7.	Assistant Professor Dr. Rodjana Chunhabundit	-
8.	Assistant Professor Sahaphume Srisuma	Assistant Professor Sahaphume Srisuma

No.	Instructor team of program 2019	Instructor team of revised program 2024
9.	Assistant Professor Dr.Wanna Sanongdej	-
10	Assistant Professor Dr. Suchinda Jarupat Maruo	Assistant Professor Dr. Suchinda Jarupat Maruo
11	Assistant Professor Dr. Wanna Sanongdej	Assistant Professor Dr. Wanna Sanongdej
12.	Lecturer Dr. Jakris Eu-ahsunthornwattana	Lecturer Dr. Jakris Eu-ahsunthornwattana
13.	-	Lecturer Warisa Soonthornvinit

## 5.2 Coursework curriculum

### The Comparison Table of Courses between the Current Program and Revising Program

Coursework before revision	Coursework after revision	Remark
<b>Required course (20 credits)</b>	<b>Required course (22 credits)</b>	
RAOT 601 Occupational Health and Diseases 3(3-0-6) รอมอพ ๖๐๑ อาชีวอนามัยและโรคจากการประกอบอาชีพ	RAOT 616 Occupational Health and Safety 2 (2-0-4) รอมอพ ๖๑๖ อาชีวอนามัยและความปลอดภัย	Changed Course code, Credit, name (Eng. & Thai) and Course Description
RAOT 602 Principle of Toxicology 3(3-0-6) รอมอพ ๖๐๒ หลักพิษวิทยา	RAOT 602 Principle of Toxicology 3(3-0-6) รอมอพ ๖๐๒ หลักพิษวิทยา	Unchanged
RAOT 604 Principle of Occupational Health Epidemiology 3(3-0-6) รอมอพ ๖๐๔ หลักระบาดวิทยาทางอาชีวอนามัย	RAOT 604 Principle of Occupational Health Epidemiology 3(3-0-6) รอมอพ ๖๐๔ หลักระบาดวิทยาทางอาชีวอนามัย	Unchanged
RAOT 605 Seminar in Occupational Health and Toxicology 1(1-0-2) รอมอพ ๖๐๕ สัมมนาทางอาชีวอนามัยและพิษวิทยา	RAOT 605 Seminar in Occupational Health and Toxicology 1(1-0-2) รอมอพ ๖๐๕ สัมมนาทางอาชีวอนามัยและพิษวิทยา	Unchanged
RAOT 606 Practice in Occupational Health 2(1-2-3) รอมอพ ๖๐๖ การปฏิบัติทางอาชีวอนามัย	RAOT 606 Practice in Occupational Health 2(1-2-3) รอมอพ ๖๐๖ การปฏิบัติทางอาชีวอนามัย	Unchanged
RAOT 607 Industrial Hygiene and Occupational Safety 2(2-0-4) รอมอพ ๖๐๗ สุขศาสตร์อุตสาหกรรม	RAOT 617 Introduction to Industrial Hygiene 2(2-0-4) รอมอพ ๖๑๗ บทนำสุขศาสตร์	Changed Course code, name (Eng. &

Coursework before revision			Coursework after revision			Remark
และความปลอดภัยในการประกอบอาชีพ			อุตสาหกรรม			Thai) and Course Description
RAOT 608	Human Genetic and Biomonitoring in Occupational Health	1(1-0-2)	RAOT 608	Human Genetic and Biomonitoring in Occupational Health	1(1-0-2)	Unchanged
ร.ม.อ.พ. ๖๐๘	มนุษย์พันธุศาสตร์และการติดตามทางชีวภาพด้านอาชีวอนามัย		ร.ม.อ.พ. ๖๐๘	มนุษย์พันธุศาสตร์และการติดตามทางชีวภาพด้านอาชีวอนามัย		
RAOT 609	Occupational Health and Safety Management	2(2-0-4)	RAOT 609	Occupational Health and Safety Management	2(2-0-4)	Changed Course Description
ร.ม.อ.พ. ๖๐๙	การจัดการด้านอาชีวอนามัยและความปลอดภัย		ร.ม.อ.พ. ๖๐๙	การจัดการด้านอาชีวอนามัยและความปลอดภัย		
RAOT 613	Research Proposal and Scientific Writing	1(1-0-2)	RAOT 613	Research Proposal and Scientific Writing	1(1-0-2)	Unchanged
ร.ม.อ.พ. ๖๑๓	โครงร่างการวิจัยและการเขียนเชิงวิทยาศาสตร์		ร.ม.อ.พ. ๖๑๓	โครงร่างการวิจัยและการเขียนเชิงวิทยาศาสตร์		
RAOT 614	Systemic and Clinical Toxicology in Occupational Medicine	2(2-0-4)	RAOT 614	Systemic and Clinical Toxicology in Occupational Medicine	2(2-0-4)	Unchanged
ร.ม.อ.พ.๖๑๔	พิษวิทยาเชิงระบบและคลินิกทางอาชีวเวชศาสตร์		ร.ม.อ.พ.๖๑๔	พิษวิทยาเชิงระบบและคลินิกทางอาชีวเวชศาสตร์		
-			RAOT 618	Occupational and Environmental Medicine	2 (2-0-4)	New Course
			ร.ม.อ.พ.๖๑๘	อาชีวเวชศาสตร์และเวชศาสตร์สิ่งแวดล้อม		
-			RAOT 619	Occupational Health and Toxicology Internship	1 (0-2-1)	New Course
			ร.ม.อ.พ. ๖๑๙	การฝึกงานด้านอาชีวอนามัยและพิษวิทยา		
Elective course (≥4 credits)			Elective course (≥2 credits)			Change Credit
RAOT 611	Special Topics in	1(1-0-2)	RAOT 611	Special Topics in	1(1-0-2)	Unchanged

Coursework before revision	Coursework after revision	Remark
Occupational Health and Toxicology รมอพ ๖๑๑ หัวข้อพิเศษทางอาชีวอนามัยและพิษวิทยา	Occupational Health and Toxicology รมอพ ๖๑๑ หัวข้อพิเศษทางอาชีวอนามัยและพิษวิทยา	
RAOT 612 Approach to Genetic Association in Health and Toxic Substance รมอพ ๖๑๒ แนวทางเข้าถึงความสัมพันธ์ของปัจจัยด้านพันธุกรรมทางสุขภาพและสารพิษ	RAOT 612 Approach to Genetic Association in Health and Toxic Substance รมอพ ๖๑๒ แนวทางเข้าถึงความสัมพันธ์ของปัจจัยด้านพันธุกรรมทางสุขภาพและสารพิษ	Unchanged
RAOT 615 Assessment of Human Exposure to Environmental Pollution รมอพ ๖๑๕ การประเมินการรับสัมผัสมลพิษสิ่งแวดล้อมในมนุษย์	RAOT 615 Assessment of Human Exposure to Environmental Pollution รมอพ ๖๑๕ การประเมินการรับสัมผัสมลพิษสิ่งแวดล้อมในมนุษย์	Unchanged
RACE 607 Clinical Economics รมรค ๖๐๗ เศรษฐศาสตร์คลินิก	RACE 607 Clinical Economics รมรค ๖๐๗ เศรษฐศาสตร์คลินิก	Unchanged
RACE 618 Systematic Review and Meta-Analysis รมรค ๖๑๘ การทบทวนอย่างเป็นระบบและอภินิหาร	RACE 618 Systematic Review and Meta-Analysis รมรค ๖๑๘ การทบทวนอย่างเป็นระบบและอภินิหาร	Unchanged
RACE 624 Research Informatics and Data Management รมรค ๖๒๔ สารสนเทศทางการวิจัยและการจัดการข้อมูล	RACE 624 Research Informatics and Data Management รมรค ๖๒๔ สารสนเทศทางการวิจัยและการจัดการข้อมูล	Unchanged
-	RACE 625 Medical statistics for clinical Research รมรค ๖๒๕ สถิติทางการแพทย์ในการวิจัยคลินิก	Add Course
RACE 626 Advanced Statistical Analysis in Clinical Research รมรค ๖๒๖ การวิเคราะห์สถิติทางการแพทย์	RACE 626 Advanced Statistical Analysis in Clinical Research รมรค ๖๒๖ การวิเคราะห์สถิติทางการแพทย์	Unchanged

Coursework before revision	Coursework after revision	Remark
วิจัยคลินิกชั้นสูง	วิจัยคลินิกชั้นสูง	
SCTX 633 Clinical Toxicology 2(2-0-4) วทพษ ๖๓๓ พิษวิทยาคลินิก	SCTX 633 Clinical Toxicology 2(2-0-4) วทพษ ๖๓๓ พิษวิทยาคลินิก	Unchanged
<b>Thesis (12 credits)</b>	<b>Thesis (12 credits)</b>	
RAOT 698 Thesis 12(0-36-0) รโมพ ๖๙๘ วิทยานิพนธ์	RAOT 698 Thesis 12(0-36-0) รโมพ ๖๙๘ วิทยานิพนธ์	Unchanged

6. The Comparison Table of the Curriculum Structure between the Current Program and Revised Program Based on the Criteria and Standards of Graduate Degree Program B.E. 2565 (set by the Commission on Higher Education Standards, The Office of Permanent, Ministry of Higher Education, Science Research and Innovation)

Course Category	Credits		
	Criteria on Graduate Studies B.E. 2565	Curriculum Structure of the Current Program	Curriculum Structure of the Revised Program
1. Required	} not less than 12	20	22
2. Elective courses		not less than 4	not less than 2
3. Thesis/thematic paper	12	12	12
Total credits (not less than)	<b>36</b>	<b>36</b>	<b>36</b>