ปรับปรุง มี.ค. ๒๕๖๖

Program Specification

DOCTOR OF PHILOSOPHY PROGRAM IN ENVIRONMENT AND RESOURCE STUDIES (INTERNATIONAL PROGRAM) REVISED PROGRAM IN 2027

หลักสูตรปรัชญาดุษฎีบัณฑิตสาขาสิ่งแวดล้อมและทรัพยากรศาสตร์ (หลักสูตรนานาชาติ) หลักสูตรปรับปรุง พ.ศ. 2570

Regular Program

FACULTY OF ENVIRONMENT AND RESOURCE STUDIES AND FACULTY OF GRADUATE STUDIES

MAHIDOL UNIVERSITY

Program Specification
Doctor of Philosophy Program in Environment and Resource Studies
(International Program)
Revised Program in 2027

Name of Institution Mahidol University

Campus/Faculty/Department Faculty of Environment and Resource Studies

Section 1
General Information

1. Program Title

In Thai : หลักสูตรปรัชญาดุษฎีบัณฑิตสาขาสิ่งแวดล้อมและทรัพยากรศาสตร์

In English : Doctor of Philosophy Program in Environment and Resource Studies

2. Degree Offered and Field of Study

In Thai	Full Name	:	ปรัชญาดุษฎีบัณฑิต (สิ่งแวดล้อมและทรัพยากรศาสตร์)
	Abbreviation	:	ปร.ด. (สิ่งแวดล้อมและทรัพยากรศาสตร์)
In English	Full Name	:	Doctor of Philosophy (Environment and Resource Studies)
	Abbreviation	:	Ph.D. (Environment and Resource Studies)

3. Major Subject (If any) Not Applicable

4. Total Credits Required not less than 48 credits

5. Program Characteristics

5.1 Program Level Doctoral

5.2 Language English

5.3 Degree Offered Doctor of Philosophy

6. Curriculum and Expected Learning Outcomes Development

6.1 Related Institutional Missions

The Doctor of Philosophy Program in Environment and Resource Studies (International Program) aligns with Mahidol University's mission of excellence in science and innovation, grounded in morality, for the advancement of Thai society and the benefit of humanity. Additionally, Mahidol University is classified as a “Global and Frontier Research University” in accordance with the Ministerial Regulation on the Classification of Higher Education Institutions B.E. 2564, which is consistent with the program’s research-oriented approach. In addition, Mahidol University is committed to the objective of achieving a "Real World Impact," aiming to foster synergy among all stakeholders in order to collaborate effectively in addressing societal challenges for the betterment of humanity. This program is dedicated to producing doctoral graduates with expertise in innovative and integrative environmental and natural resource management. Graduates will be equipped with the knowledge and skills necessary to effectively apply scientific principles to environmental and natural resource management with efficiency and sustainability.

6.2 External Factors and/or Development Considered in Program Planning

1. Economic Situation/Development

The rapid economic growth and expansion of human settlements pose significant environmental risks, including unsustainable urban development that places immense pressure on natural resources and contributes to environmental degradation. Furthermore, the escalating effects of climate change and natural disasters have become increasingly severe, evolving in complexity and requiring extensive time and effort to mitigate. Climate change, in particular, stems from a combination of environmental factors and necessitates active engagement from all sectors to address every stage of the pollution cycle. Effectively responding to these challenges requires multi-level regional cooperation and a comprehensive, integrated approach to problem-solving.

As a member of ASEAN, Thailand plays an active role in advancing initiatives to address environmental issues through the regional ASEAN platform. This platform facilitates knowledge-sharing and fosters strategic partnerships that leverage modern expertise and technological advancements for the effective management of natural resources and the promotion of sustainable environments. In addition to regional efforts, global frameworks such as the Paris Agreement, the Sustainable Development Goals (SDGs), and circular economy models provide essential mechanisms for combating climate change and environmental degradation. A multi-level regional approach encourages the exchange of ideas, innovation, resources, and strategies, ensuring that solutions are tailored to both local and regional contexts. Moreover, adopting a holistic approach that integrates economic, social, and environmental considerations is essential for achieving long-term sustainability and resilience in addressing global environmental challenges. Preparing graduates to navigate future

challenges is of paramount importance. Therefore, research systems must be adaptable and responsive to shifts in economic development, enabling them to contribute effectively to problem-solving and sustainable progress.

2. Social and Cultural Situation/Development

Social inequality often leads to disparities in access to natural resources, leaving marginalized communities without the means to protect or sustainably manage these resources. Additionally, ineffective governance, including poorly managed government projects and inconsistent law enforcement exacerbates resource depletion, resulting in widespread and long-term environmental degradation. While technological advancements offer numerous benefits, they also expand human access to natural resources, often without adequate consideration of the potential environmental consequences. The combination of social inequality and unchecked technological exploitation poses significant and, in some cases, irreversible threats to ecosystems and communities.

Sustainable development has emerged as a globally recognized framework, emphasizing the need to meet present-day demands while ensuring the preservation of a healthy environment for future generations. Development, however, can yield both positive and negative social and environmental impacts, depending on the extent to which these factors are integrated into decision-making processes. Higher educational institutions play a crucial role in fostering sustainable development by promoting the principles of “Understand, Achieve, and Develop”, as outlined in the Royal Development Philosophy of His Majesty King Rama IX. Through education, research, and innovation, Higher educational institution contributes to equipping communities with the knowledge and skills necessary to establish a balanced and sustainable relationship between humans, natural resources, and the environment.

6.3 Stakeholder Needs/Expectations

The survey results of stakeholder needs and expectations from 6 Program-Level Learning Outcomes (PLOs) have analysed and presented in **Appendix 3.1**.

(Shown in Appendix 3)

7. Career Opportunities of the Graduates

1. University lecturer and researcher specializing in environmental and natural resource management at higher education institutions.
2. Environmental policy expert developing and advising on environmental sustainability policies for both government and private sector organizations.

3. Sustainability expert leading corporate sustainability initiatives and Environmental, Social, and Governance (ESG) strategies.
4. Independent environmental consultant providing expertise in assessing and mitigating environmental impacts in the private sector.
5. Environmental and natural resource management specialist working with NGOs and international organization at the state, national, and regional levels

Section 2

Philosophy, Program Objectives, and Program–Level Learning Outcomes

1. Philosophy

Emphasizing the development of students into academic professionals with advanced knowledge, skills, and expertise in environmental and natural resource management. The program fosters independent and creative learning, ethical responsibility, and a broad perspective. Graduates will be well-prepared to work both independently and collaboratively, demonstrating adaptability to disruptive challenges and emerging technologies in both present and future contexts.

2. Program Objectives

The graduates will meet the following graduate qualification standards:

1. Demonstrate ethical conduct, academic integrity, and professional reliability in environmental and natural resource management research;
2. Demonstrate a comprehensive understanding of the principles and theories in environmental and natural resource management, engage in self-directed learning, and remain updated on academic and technological advancements in the field;
3. Creatively research design, critically analyse, and criticize research in the field of environmental and natural resource management;
4. Utilize information technology for mathematical and statistical analysis, data compilation, and interpretation to conduct research, as well as for research presentation and dissemination.
5. Demonstrate leadership and the ability to work collaboratively across diverse cultural and geographic contexts while maintaining a high level of responsibility for assigned tasks.

3. Program–Level Learning Outcomes: PLOs

When completing the program, the graduates will be able to

1. Demonstrate moral ethics as a professional in the field of environment and natural resource research
2. Demonstrate proficiency in academic communication through effective speaking and writing skills
3. Analyze theories, principles, and interrelationships between environmental challenges and the humanities.

4. Solve environmental problems using accurate information, technology and modern tools
5. Integrate facts, concepts, and methods from multidisciplinary approaches to make well-informed academic decisions on complex environmental issues
6. Create novel interdisciplinary research studies for sustainable development at the state, national and regional levels in terms of publication and innovation

4. Relationship and Comparison between Program-Level Learning Outcomes (PLOs) and Learning Outcome Standards in Accordance with Thai Qualifications Framework for Higher Education: Shown in Appendix 3

All six PLOs have been related to and compared with Learning Outcome Standards in Accordance with Thai Qualifications Framework for Higher Education Year B.E. 2565, as shown in **Appendix 3.2**.

Section 3

Educational Management System, Curriculum Structure, Course of the Program and Credits

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. Courses are held during regular working hours.

First semester: August to December

Second semester: January to May

1.2 Summer Sessions None

1.3 Credit Equivalence Ratio (In Reference to Semester System) None

1.4 Academic System

☒ In Class

☐ Distance Learning Mainly Through Printed Materials

☐ Distance Learning Mainly Through Broadcast Media

☐ Distance Learning Mainly Through Electronic Media (E-learning)

☐ Distance Learning Through the Internet

☐ Others (Please Specify)

1.5 Credit Transfer and Cross-institutional Enrollment (If any)

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

2. Curriculum

2.1 Number of Credits

The required number of credits in total must not be less than 48 credits

2.2 Curriculum Structure

Complies with the Announcement of The Commission on Higher Education Standard on the subject of Criteria and Standards of Graduate Studies B.E. 2565, a Doctoral's Degree, Plan 1.1 as below:

1)	Dissertation	48 credits
	Total not less than	48 credits

2.3 Courses of the Program

2.3.1 Courses of the Program

1) Dissertation

For Plan 1.1 Academic (Research only)

Credits (lecture – laboratory – self-study)

ENID สวคร	898 ๘๙๘	Dissertation วิทยานิพนธ์	48 (0 –144–0)

2.3.2 Definition of Course Codes

Four main alphabets are defined as follows:

The first two letters are an abbreviation of the faculty offering the course.

EN (สว) means an abbreviation of the Faculty of Environment and Resource Studies

The latter two letters are an abbreviation of the department or the major offering the course.

ID (คร) means an abbreviation of the subject in several disciplines

3 digit numbers (8XX) indicate that the courses are in the graduate study level.

2.4 Study Plan

Year	Semester 1	Semester 2
1	- Workshop 1: The Natural resources Assessment and Analysis - Workshop 2: Technology of Environmental Pollution Management - ENID 898 2 (0-6-0) - Qualifying examination: Literature review and identify research gaps - Proposal Development: Literature review and topic refinement - Appointment of advisor - 2 Progress reports* - Academic forum** Total 2 credits	- Workshop 3: Research Methodology and Academic Writing - Workshop 4: Advanced Statistics - ENID 898 8 (0-24-0) - Proposal Defense - Research proposal and methodology planning - Present proposal - 2 Progress reports - Academic forum Total 8 credits
2	- ENID 898 10 (0-30-0) - Research activities - Working out with human/animal ethics application - Data collection, field sampling, or laboratory experiments	- ENID 898 10 (0-30-0) - Research activities - Data collection, field sampling, or laboratory experiments - Data analysis

Year	Semester 1	Semester 2
	- Data analysis - 2 Progress reports - Academic forum - Preparation of manuscript #1 Total 10 credits	- Draft results and discussion chapters of the thesis - 2 Progress reports - Academic forum - Submission manuscript #1 - Preparation of manuscript #2 Total 10 credits
3	- ENID 898 10 (0-30-0) - Research activities - Data collection, field sampling, or laboratory experiments - Data analysis - Draft results and discussion chapters of the thesis - 2 Progress reports - Academic forum - Submission manuscript #2 - Draft additional manuscripts for peer-reviewed journals - Preparation of dissertation - Writing up Total 10 credits	- ENID 898 8 (0-24-0) - 2 Progress reports - Academic forum - Dissertation defense - Submission of dissertation - Acceptance letters of 2 publications Total 8 credits

Remark

***** Progress report - students must present their updated research progress to classmates, program committees and major advisors twice a semester (at the beginning and the end of each semester as scheduled by the committee members and notified to students in advance each semester)

****** Academic forum - students must present their own research topic or relevant research articles the same way as for an academic conference presentation to classmates, program committees and major advisors once a semester (in the middle of each semester as scheduled by the committee members and notified to students in advance each semester).

2.5 Program learning outcomes-based curriculum mapping and Objective-based curriculum mapping Shown in Appendix 4

3. Course Description

Shown in Appendix 6

4. Details of Practicum (if any) or Internship - None –

4.1 Course code

4.2 Standard Learning Outcomes of Field Experience or Internship

4.3 Time Frame

Semester.....Year.....

Class Schedule .....

5. Dissertation requirement

5.1 Research Project of the Program

Research direction from expertise of academic staffs can be classified into 2 themes:

1. Natural Resource Management

1.1 Geology

1.2 Soil science

1.3 Forestry and wildlife

1.4 Water and wetland management

1.5 Marine and coastal resources

1.6 Environmental economics

1.7 Environmental social sciences and health

1.8 Environmental statistics

2. Environmental Technology

2.1 Wastewater Management

2.2 Industrial Ecology and Greenhouse Gas Management

2.3 Air pollution

2.4 Clean energy

2.5 Environmental toxicology and remediation

2.6 Waste management and utilization

2.7 GIS and remote sensing

5.2 Preparation

Dissertation advising time must be provided including advice from advisors and other academic experts. Students are required to prepare progress reports and research plans and present to the program committee twice a semester.

5.3 Standard Learning Outcomes

Students can analyze and apply knowledge in environmental and resource sciences to develop a well-structured thesis proposal. They are capable of planning and conducting research systematically, selecting appropriate tools, integrating knowledge, and making informed decisions based on academic principles to address environmental issues effectively. Moreover, they can produce high-quality research in compliance with research ethics and disseminate their findings with integrity and professionalism.

5.4 Time Frame

Semester 1 Year 1

Year	Semester 1	Semester 2
1	- **Workshop 1:** The Natural resources Assessment and Analysis **- Workshop 2:** Technology of Environmental Pollution Management - ENID 898 Dissertation 2 (0-6-0) - Qualifying examination - Proposal Development - Appointment of advisor - 2 Progress reports* - Academic forum** **Total 2 credits**	**- Workshop 3:** Research Methodology and Academic Writing **- Workshop 4:** Advanced Statistics - ENID 898 Dissertation 8 (0-24-0) - Proposal Defense - 2 Progress reports - Academic forum **Total 8 credits**
2	- ENID 898 Dissertation 10 (0-30-0) - Research activities - 2 Progress reports - Academic forum - Preparation of manuscript #1 **Total 10 credits**	- ENID 898 Dissertation 10 (0-30-0) - Research activities - 2 Progress reports - Academic forum - Submission of manuscript #1 - Preparation of manuscript #2 **Total 10 credits**

Year	Semester 1	Semester 2
3	- ENID 898 Dissertation 10 (0-30-0) - Research activities - 2 Progress reports - Academic forum - Submission of manuscript #2 - Preparation of dissertation **Total 10 credits**	- ENID 898 Dissertation 8 (0-24-0) - 2 Progress reports - Academic forum - Dissertation defense - Submission of dissertation - Acceptance letters of 2 publications **Total 8 credits**

Remark:

Dissertation progression:

* Progress report: Students must present their updated research progress to classmates, PhD program committee and major advisors twice a semester (at the beginning and the end of each semester).

** Academic forum: Students must present their own research topic or relevant research articles the same way as for an academic conference presentation to classmates, PhD program committee and major advisors once a semester (in the middle of each semester). The level of content presentation will be adjusted based on students' research progress, ensuring coherence and relevance at each stage.

5.5 Research Activities

Qualifying examination, proposal development, proposal defense, human/animal ethics certificate, data collection, data analysis, dissertation defense, preparation of manuscript, research publication

5.6 Evaluation Process

The research progress is evaluated by the program committee and dissertation advisor based on the student's presentation of progress reports twice a semester. The research process shall be evaluated by the dissertation advisor every time of consultation during conduction of the research. The qualifying examination is also evaluated by the program committee and dissertation advisor based on the student's presentation. The proposal defense is progress is evaluated by the proposal committee and dissertation advisor based on the student's presentation and dissertation book. The final oral examination is systematically evaluated by the graduate committee following the standards of the Faculty of Graduate Studies, Mahidol University. In addition, the research outputs or part(s) of dissertation must be published in the international journals indexed in the international databases as announced by Faculty of Graduate Studies, Mahidol University.

Section 4
Program-Level Learning Outcomes, Teaching and Evaluation Strategy

Program-Level Learning Outcomes (PLOs), Constructive Alignment: Teaching and Evaluation Strategies

Program-Level Learning Outcomes	Teaching Strategy	Evaluation strategy
PLO 1 Demonstrate moral ethics as a professional in the field of environment and natural resource research	Workshops 1-3	- Formative feedback from lecturers - Minimum of 80% attendance required
	Presentation in academic forum	- The academic forum is evaluated by the program committee and major advisor with regard to the ethical standards of the presentations
	Proposal defense	- Similarity result of research proposals considered by committee members
	Working out with Human/animal ethics assessment	- Human/animal ethics approval
	Dissertation defense	- Similarity result of dissertation considered by committee members
	Manuscript writing	- Similarity result considered by major advisor and co authors
PLO 2 Demonstrate proficiency in academic communication through effective speaking and writing skills	Workshops 1-4	- Formative feedback from lecturers - minimum of 80% attendance required

Program-Level Learning Outcomes	Teaching Strategy	Evaluation strategy
	Presentation in progress report and academic forum	- The presentation is evaluated by the program committee based on the rubrics for progress report and academic forum
	Qualifying examination (QE)	- The QE presentation is evaluated by the QE committee based on the rubrics for QE
	Proposal defense	- The Proposal defense is evaluated by the proposal committee based on the rubrics for proposal defense
	Dissertation defense	- The dissertation defense is evaluated by the dissertation committee and external committee based on the rubrics for dissertation defense
	Manuscript writing	- Peer review - Articles are accepted for publication
PLO 3 Analyze theories, principles, and interrelationships between environmental challenges and the humanities.	Workshops 1-3	- Formative feedback from lecturers - Minimum of 80% attendance required
	Qualifying examination:	- QE assessment rubrics is evaluated by the QE committee
	Academic forum (AF)	- AF assessment rubric is evaluated by the program committee and advisor

Program-Level Learning Outcomes	Teaching Strategy	Evaluation strategy
	Proposal defense	- Proposal assessment rubric is evaluated by the proposal committee
	Manuscript writing	- Peer review - Articles are accepted for publication
	Dissertation defense	- Dissertation assessment rubric is evaluated by the Dissertation committee
PLO 4 Solve environmental problems using accurate information, technology and modern tools	Workshops 1-4	- Formative feedback from lecturers - minimum of 80% attendance required
	Qualifying examination:	- QE assessment rubrics is evaluated by the QE committee
	Academic forum	- AF assessment rubric is evaluated by the program committee and advisor
	Proposal defense	- Proposal assessment rubric is evaluated by the proposal committee
	Manuscript writing	- Peer review - Articles are accepted for publication
	Dissertation defense	- Dissertation assessment rubric is evaluated by the Dissertation committee
PLO 5 Integrate facts, concepts, and methods from multidisciplinary approaches to	Academic forum	- AF assessment rubric is evaluated by the program committee and advisor

Program-Level Learning Outcomes	Teaching Strategy	Evaluation strategy
make well-informed academic decisions on complex environmental issues	Proposal defense	- Proposal assessment rubric is evaluated by the proposal committee
	Manuscript writing	- Peer review - Articles are accepted for publication
	Dissertation defense	- Dissertation assessment rubric is evaluated by the Dissertation committee
PLO 6 Create novel interdisciplinary research studies for sustainable development at the state, national and regional level in terms of publication and innovation	Manuscript writing	- Peer review - Articles are accepted for publication
	Dissertation defense	- Dissertation assessment rubric is evaluated by the Dissertation committee

Section 5
Potential in Curriculum Management

1. Record of Program Status and Approval / Endorsement

1.1 The program was first offered in the year 1998.

1.2 The curriculum was revised in the first semester of academic year 2027 onwards. by adapting from the revised edition 2022.

1.3 The Mahidol University Council approved this program at its meeting No ..... dated .....

1.4 The Professional Council certified the program on ..... (date) .... (month) ..... (year) ..... (if any)

2. Collaboration with Other Institutions

-None-

3. Study Site Location

Faculty of Environment and Resource Studies, Mahidol University

4. Program Implementation

4.1 Academic Calendar

.....

4.2 A Five-year Plan for Admission and Graduation

Academic Year	2027	2028	2029	2030	2031
First-year student	4	4	4	4	4
Second-year student	-	4	4	4	4
Third-year student	-	-	4	4	4
Cumulative number	4	8	12	12	12
Number of expected graduates	-	-	4	4	4

5. Budget Plan

Estimated income per student (P)	Baht
Tuition Fee	330,000

Estimated income per student (P)	**Baht**
Thesis / Dissertation / Independent Studies	
Position allowance of Qualifying Examination or Comprehensive Examination and committee	
Work-site Training Fee / Program Fee	
Research Fee	
Equipment Fee	
Work-Site Study Fee (domestic/abroad)	
Semester Fee (Semester Fee (5,500 THB))	
Total income per student (P)	**330,000**
Estimated expenses	
Variable expenses per student (V)	
Position allowance of thesis advisor and committee	68,450
Position allowance of Qualifying Examination or Comprehensive Examination and committee	4,000
Work-site Training Fee / Program Fee	
Research Fee	
Equipment Fee	
Work-Site Study Fee (domestic/abroad)	
College/university allocation and Semester Fee	136,950
Total variable expenses per student (V)	**209,400**
Fixed expenses (FC0)	
Program director payment per month 1,000 ฿	36,000
Program secretary payment per month 500 ฿	18,000
Teaching payment (Full time instructors)	
Teaching payment (Part time instructors)	
Full time instructors salary	
Full time instructors of the curriculum salary (Government Support)	
The Faculty in Charge of the Program salary (Government Support)	
Staff salary per month 3,214 ฿	115,704
Rental Fee	
Attendance Fee per month 600 ฿	21,600
Operating Fee per month 1,566 ฿ (36 month)	56,376
Utility Fee per month 457 ฿	16,452

Estimated income per student (P)	Baht
Material Fee per month 704 ฿	25,344
Equipment Fee	
Maintenance Fee	
Depreciation Fee per month 158 ฿	5,688
Other	
Workshop	28,000
Orientation	100,000
Total Fixed expenses (FC0)	**423,164**
Number of students at break-even point (QOBE) (excluding instructors salary)	**4 persons**
Cost of students at break-even point	328,358.74
Expenses per student per academic year	109,452.91
Expenses per student per semester	**54,726.46**

6. Program Instructors

6.1 Name, Title and Degree of Program Instructors

6.1.1 The Faculty in Charge of the Program

No.	Academic Position Name-Surname	Degree	Field of Study	Graduation	
				Institution/Country	Year
1	x-xxxx-xxxxx-xx-x Professor Dr. Benjaphorn Prapagdee	D.Tech.Sc.	Environmental Toxicology, Technology and Management	Asian Institute of Technology	2004
		M.Sc.	Industrial Microbiology	Chulalongkorn University	1995
		B.Sc.	Microbiology	Burapha University	1992
2	x-xxxx-xxxxx-xx-x Associate Professor Dr. Naphatsarnan Phasukarratchai	Ph.D.	Environmental Management	Chulalongkorn University	2016
		M.Sc.			2009

No.	Academic Position Name-Surname	Degree	Field of Study	Graduation	
				Institution/Country	Year
		B.Sc.	Environmental Management Environmental Science and Technology	Chulalongkorn University Mahidol University	2007
3	x-xxxx-xxxxx-xx-x Associate Professor Dr.Paramita Punwong	Ph.D. M.Sc. B.Sc.	Environmental Science Botany Biology	University of York, UK. Chulalongkorn University Prince of Songkla University	2013 2007 2004
4	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Witchaya Rongsayamanont	Ph.D. M.Sc. B.Sc.	Environmental Management Environmental Management Environmental Science and Technology	Chulalongkorn University Chulalongkorn University Mahidol University	2017 2009 2007

6.1.2 Full time instructors of the curriculum

No.	Academic Position Name-Surname	Degree	Field of Study	Graduation	
				Institution/Country	Year
1	x-xxxx-xxxxx-xx-x Professor Dr. Duangrat Inthorn	Ph.D.	Pharmaceutical Science	Osaka University, Japan	1997

No.	Academic Position Name-Surname	Degree	Field of Study	Graduation	
				Institution/Country	Year
		M.Sc.	Biotechnology	Chulalongkorn University	1991
		B.Sc.	Microbiology	Chulalongkorn University	1987
2	x-xxxx-xxxxx-xx-x Associate Professor Dr. Cheerawit Rattanapan	Ph.D.	Biotechnology	Prince of Songkla University	2009
		M.Sc.	Environmental Management	Prince of Songkla University	2004
		B.Sc.	General Science	Prince of Songkla University	2002
3	x-xxxx-xxxxx-xx-x Associate Professor Dr. Jaruwan Wongthanate	Ph.D.	Green Chemistry and Environmental Biotechnology	University of Science and Technology, Korea	2007
		M.Sc.	Environmental Technology and Management	Asian Institute of Technology	2002
		B.Sc.	Sanitary Science	Mahidol University	1997
4	x-xxxx-xxxxx-xx-x Associate Professor Dr. Kampanad Bhaktikul	Ph.D.	Civil and Environmental Engineering	The University of Edinburgh, Scotland, United Kingdom	2001
		M.Sc.	Technology of Environmental Management	Mahidol University	1992
		B.Ed.	English		1998

No.	Academic Position Name-Surname	Degree	Field of Study	Graduation	
				Institution/Country	Year
		Diploma	Irrigation Engineer	Rattanakosin United College (Phranakhon) School of Irrigation, Royal Irrigation Department	1984
5	x-xxxx-xxxxx-xx-x Associate Professor Dr. Kanchana Nakhapakorn	D.Tech.Sc.	Remote Sensing and Geographic Information system	Asian Institute of Technology	2006
		M.Sc.	Remote Sensing and Geographic Information system	Asian Institute of Technology	1997
		B.A.	Geography	Kasetsart University	1993
6	x-xxxx-xxxxx-xx-x Associate Professor Dr. Kritana Prueksakorn	D.Eng.	Environmental Engineering	Changwon National University, South Korea	2015
		M.Phil.	Environmental Technology	King Mongkut's University of Technology Thonburi	2008
		B.S.	Environmental Science	Kasetsart University	2004
7	x-xxxx-xxxxx-xx-x Associate Professor Dr. Noppol Arunrat	Ph.D.	Environmental Science and Engineering	Tsinghua University, China	2017
		Ph.D.	Environmental Resources	Hokkaido University, Japan	2017

No.	Academic Position Name-Surname	Degree	Field of Study	Graduation	
				Institution/Country	Year
		M.Sc.	Technology of Environmental Management	Mahidol University	2008
		B.Sc.	Technology for Marine and Coastal Resources Management	Walailak University	2005
8	x-xxxx-xxxxx-xx-x Associate Professor Dr. Rattanawat Chaiyarat	Ph.D.	Forestry	Kasetsart University	2001
		M.S.	Forestry	Kasetsart University	1997
		B.S.	Forestry	Kasetsart University	1995
9	x-xxxx-xxxxx-xx-x Associate Professor Dr. Sayam Aroonsrimorakot	Ph.D.	Interdisciplinary Agriculture	Maejo University	2017
		B.P.H.	Occupational Health and Safety	Sukhothai Thammathirat Open University	2013
		M.Sc.	Technology of Environmental Management	Mahidol University	1993
		B.S.	Agriculture	Chandrakasem Rajabhat University	1993
		M.S.	Resource Management	Kasetsart University	1992
		B.Ed.	Health Education	Kasetsart University	1988
10	x-xxxx-xxxxx-xx-x				

No.	Academic Position Name-Surname	Degree	Field of Study	Graduation	
				Institution/Country	Year
	Associate Professor Dr. Sukanya Sereenonchai	Ph.D.	Communication	Communication University of China, China	2014
		M.A.	Language and Culture for Communication and Development	Mahidol University	2007
		B.A.	Languages for Career	Srinakharinwirot University	2003
11	x-xxxx-xxxxx-xx-x Associate Professor Dr. Sureewan Sittijunda	Ph.D.	Biotechnology	Khon Kaen University	2012
		M.Sc.	Environmental Management	Chulalongkorn University	2007
		B.Sc.	Biotechnology	Khon Kaen University	2005
12	x-xxxx-xxxxx-xx-x Associate Professor Dr. Thamarat Phutthai	Ph.D.	Biology	Prince of Songkla University	2011
		M.S.	Forestry	Kasetsart University	2007
		B.S.	Forestry	Kasetsart University	2003
13	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Achara Ussawarujikulchai	Ph.D.	Civil Engineering	Florida International University, USA	2003
		M.Sc.	Environmental Engineering	Florida Institute of Technology, USA	1996
		B.Eng.	Environmental Engineering	Chulalongkorn University	1992
14	x-xxxx-xxxxx-xx-x				

No.	Academic Position Name-Surname	Degree	Field of Study	Graduation	
				Institution/Country	Year
	Assistant Professor Dr. Allan Sriratana Tabucanon	Ph.D.	Urban Engineering	The University of Tokyo, Japan	2013
		M.Sc.	Environmental Engineering	Saitama University, Japan	2010
		B.Eng.	Civil Engineering	Thammasat University	2007
15	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Chotika Muangsong	Ph.D.	Geology	China University of Geosciences (Wuhan), China	2015
		M.Sc.	Environmental Management Technology	Mahidol University	2010
		B.A.	Sociology and Anthropology	Kasetsart University	2006
		B.Sc.	Forestry	Kasetsart University	2006
16	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Monthira Yuttiham	Ph.D.	Environmental Technology	King Mongkut's University of Technology Thonburi	2011
		M.Sc.	Natural Resource Management	King Mongkut's University of Technology Thonburi	2001
		B.Sc.	Agriculture	King Mongkut's Institute of Technology	1998

No.	Academic Position Name-Surname	Degree	Field of Study	Graduation	
				Institution/Country	Year
				Chaokhuntaharn Ladkrabang	
17	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Preeyaporn Koedrith	Ph.D. B.Sc.	Biotechnology Biotechnology	Mahidol University Silpakorn University	2009 1999
18	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Suparee Wisawapipat Boonmanunt	Ph.D. Master	Economics Economics	University of Cologne, Germany University of Cologne, Germany	2017 2010
19	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Thunyapat Sattraburut	Ph.D. M.S. B.S.	Geology Geology Geology	Chiang Mai University Chiang Mai University Chiang Mai University	2020 2017 2015
20	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Wanwisa Pansak	Dr. M.Sc. B.Sc.	Agricultural Science Natural Resources and Environmental Management Agro-Industry	University of Hohenheim, Germany Naresuan University Naresuan University	2009 2002 1999
21	x-xxxx-xxxxx-xx-x Lecturer Dr. Abhisit Bhatsada	Ph.D. M.Eng.	Environmental Technology	King Mongkut's University of Technology Thonburi	2023 2020

No.	Academic Position Name-Surname	Degree	Field of Study	Graduation	
				Institution/Country	Year
		B.Eng.	Environmental Technology and Management	King Mongkut's University of Technology Thonburi	2016
			Environmental Engineering	Suranaree University of Technology	
22	x-xxxx-xxxxx-xx-x Lecturer Dr. Boonlue Kachenchart	Ph.D.	Biological Sciences	Chulalongkorn University	2012
		M.Sc.	Technology of Environmental Planning for Rural Development	Mahidol University	1998
		B.Ag.Tech.	Landscape Technology	Maejo Institute of Agricultural Technology	1994
23	x-xxxx-xxxxx-xx-x Lecturer Dr. Jakkapon Phanthuwongpakdee	Ph.D.	Engineering and Technology	Sirindhorn International Institute of Technology, Thammassat University	2021
		Ph.D.	Material Science	Japan Advanced Institute of Science and Technology, Japan	2020
		M.Sc.	Urban Water Engineering and Management	University of Sheffield, UK	2012

No.	Academic Position Name-Surname	Degree	Field of Study	Graduation	
				Institution/Country	Year
		B.Sc.	Environmental Science	University of Oregon, USA	2011
24	x-xxxx-xxxxx-xx-x Lecturer Dr. Jittakon Ramanpong	Ph.D.	Forestry and Resource Conservation	National Taiwan University, Taiwan	2021
		M.S.	Parks, Recreation, and Tourism	Kasetsart University	2015
		B.S.	Forestry	Kasetsart University	2013
25	x-xxxx-xxxxx-xx-x Lecturer Dr. Narin Boontanon	Ph.D.	Biological Sciences	Kyoto University, Japan	2001
		M.Sc.	Analytical Chemistry	Prince of Songkla University	1996
		B.Sc.	Chemistry	Srinakharinwirot University	1993
26	x-xxxx-xxxxx-xx-x Lecturer Dr. Tatiya Siripongpreda	Ph.D.	Nanoscience and Technology	Chulalongkorn University	2016
		B.Sc.	Environmental Science	Chulalongkorn University	2022

7. Instructor's Professional Development

7.1 New Instructor Orientation

1. New faculty members have to attend an orientation that aims to provide knowledge and understanding about the policies and philosophy of Mahidol University and the Faculty and are also trained to understand the curriculum and process of teaching
2. The faculty will support and encourage new lecturers to enhance their knowledge related

to their professional fields for improved teaching and research.

7.2 Knowledge and Skill Development for Instructor

7.2.1 Development of Teaching Skills, Assessment, and Evaluation

1. Provide workshops to develop skills/upskills on teaching and learning methods by encouraging research with the support of the university for both national and international levels.

2. Allow the academic staffs to participate in the evaluation and revision of the curriculum, courses, and research implemented by the university or other organizations and to participate in international conferences.

3. The faculty will encourage new lecturers to enhance their knowledge of the ethics and inclusivity in research.

7.2.2 Other Academic and Professional Development

1. University provides research funds and reward and open access charge for Q1 academic publications.
2. Support academic staffs for participation in the proceedings of national and international conferences.
3. Support academic staffs to attend meetings, training sessions, seminars and studies at other institutes and organizations.

Section 6
Admission Requirements

1. Admission Requirements

1. Hold a Master's degree or equivalent in the fields of study in these followings or other related fields
    - Environmental science, technology and management
    - Social sciences, humanities, law, journalism and information
    - Business, economics, finance and administration
    - Natural sciences, mathematics and statistics
    - Information and Communication Technologies (ICTs)
    - Engineering, architecture, manufacturing and construction
    - Agriculture, forestry, fisheries and veterinary
    - Health and welfare
2. Have cumulative GPA not less than 3.50 (GPA on a 4.0 scale)
3. Have and English Proficiency Examination score as the requirement of Faculty of Graduate Studies
4. Have a concept paper for PhD research that is considered by the program committees
5. Other requirements shall follow those that specified by the Faculty of Graduate Studies
6. Qualifications different from 2) – 5) may be considered by the Program Administrative Committee and the Dean of the Faculty of Graduate Studies.

2. Admission

2.1 Recruitment: Both Thai and international students

2.2 Admission process:

1. Submit documents: Present a concept paper, one page of statement of propose (SOP) and all required documents.
2. Interview appointment: Schedule an interview with the committee and unofficial initial advisor (optional).
3. Interview process: Students attend the interview and be evaluated by the committee via a rubric assessment.
4. Notification of results: Examination results are sent to the Faculty of Graduate Studies (FGS).
5. Announcement: FGS announces the list of eligible applicants.
6. Registration: Eligible applicants report for study and complete registration.

3. Limitations for Certain Groups of Newly Enrolled Students and Strategies to Resolve Students' Limitations

Limitations of Newly Enrolled Students	Strategies to Resolve Students' Limitations
1. Academic communication and presentation	- Students are required to attend and present in seminar and academic activities. - Students are encouraged to present in international academic conferences.
2. English skills	- Students are required to take English courses to improve their English proficiency. - Students are required to present their research progress twice a semester. - Academic papers of students for conferences and journals submission are proofed by a foreign expert.
3. Foundation of academic background	- Students are required to attend four workshops (The natural resource assessment and analysis; Technology of environmental pollution; Research methodology and academic writing; Advanced statistics) that provide by PhD program and consult with an initial advisor on research issues prior to take the qualifying examination. - Students are encouraged to participate in the seminar and training courses.
4. Study and research visions	- Students are required to attend the workshop of research methodology that provide by PhD program. - Students are encouraged to participate in academic conferences both in Thailand and aboard.

Section 7
Student Evaluation Criteria and Graduation Requirements

1. Grading Rules/Guidelines

Grading system and graduation shall be complied with the criteria stated in the Regulations of Mahidol University on Graduate studies. For more information, please visit www.grad.mahidol.ac.th

The program employs none-coursework assessments evaluated by supervisors, examiners and PhD committee consisting of a qualifying examination, dissertation progress reports, and academic forums, as well as a proposal defense and dissertation defense. The student will be informed of the results from these assessments which can be used for student research improvement until graduated. Evaluation processes for the learning outcome of students are also summarized in the Table 7.1 below.

1. Students are required to take the Qualify Examination (QE) according to the Regulation on Graduate Studies, Faculty of Graduate Studies, Mahidol University and achieve a satisfactory score within the first semester.
2. Students are required to attend four regular workshops provided by the Program, two progress reports and an academic forum with a satisfactory score in every semester.
3. Students should defend their proposal dissertation within their second semester.
4. Students must receive the approval of Mahidol University Central Institutional Review Board (MU-CIRB) for their research study.
5. Students must propose dissertation to the committee appointed by the Faculty Graduate Studies, defense in a public oral examination and pass as the final stage
6. Student must pass English Proficiency test following the Faculty of Graduate Studies' criteria
7. The complete or part of the Dissertation has to be published or accepted in at least two qualified international journals as announced by the Faculty of Graduate Studies, Mahidol University, published or accepted to be published in at least one qualified international journal as announced by the Faculty of Graduate Studies, Mahidol University, granted at least one patent, accepted as one innovation, or acknowledged as one creative product that

can be applied commercially, socially, and economically. In the case of innovative or creative product, the thesis shall be evaluated by at least 3 external Dissertation committees from the same field or related field who are knowledgeable, experienced, and highly recognized and approved by the University Council. In the case of innovative or creative product, the dissertation shall be evaluated by at least 3 external Dissertation committees from the same field or related field who are knowledgeable, experienced, and highly recognized and approved by the University Council.

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

Table 7.1 Evaluation process for the learning outcome of students

PLOs	Learning Activities	Assessment	Achievement Indicators	Semester
1.	1. Attending Workshops 1-3/training (group discussion, assignment)	1. Formative feedback from lecturers (for workshops)	1.Satisfying formative feedback from lecturers and attendance mandatory, with a minimum of 80% required	1, 2
	2. Working out with human/animal ethics application	2. Human/animal ethics assessment	2. No ethical misconduct with human/animal ethics approval	3, 4
	3. Presentation in progress report and academic forum	3. Progress report assessment & academic forum assessment	3. Satisfying progress report and academic forum	1, 2, 3, 4, 5, 6
	4. Proposal writing	4. Proposal assessment rubric	4. Approved research proposal	2

PLOs	Learning Activities	Assessment	Achievement Indicators	Semester
	5. Dissertation writing	5. Anti-plagiarism check for written assignment and thesis/dissertation	5. Pass the anti-plagiarism check	6
	6. Manuscript writing	6. Anti-plagiarism check for publication	6. Pass the anti-plagiarism check	4, 5
2.	1. Attending Workshops 1-4/training (group discussion, assignment)	1. Formative feedback from lecturers (for workshops)	1.Satisfying formative feedback from lecturers and attendance mandatory, with a minimum of 80% required	1, 2
	2. Presentation in progress report and academic forum	2. Progress report assessment & academic forum assessment	2. Satisfying progress report and academic forum	1, 2, 3, 4, 5, 6
	3. Presenting assignment and analysis of a case study from related articles for qualifying examination	3. Qualifying examination rubric	3. Pass the qualifying examination	1
	4. Proposal writing	4. Proposal assessment rubric	4. Approved research proposal	2
	5. Dissertation writing	5. Dissertation defense assessment rubric	5. Pass dissertation defense	6
	6. Manuscript writing	6. Peer review process for journal submission	6. Articles are accepted for publication	4, 5
3.	1. Attending workshops 1-3 (group discussion, assignment)	1. Formative feedback from lecturers (for workshops)	1.Satisfying formative feedback from lecturers and attendance	1, 2

PLOs	Learning Activities	Assessment	Achievement Indicators	Semester
			mandatory, with a minimum of 80% required	
	2. Reading assignment and analysis of a case study from related articles for qualifying examination	2. Qualifying examination rubric	2. Pass the qualifying examination	1
	3. Academic forum	3. Academic forum assessment	3. Satisfying academic forum	1, 2, 3, 4, 5, 6
	4. Proposal writing	4. Proposal assessment rubric	4. Approved research proposal	2
	5. Dissertation writing	5. Dissertation defense assessment rubric	5. Pass dissertation defense	6
	6. Manuscript writing	6. Peer review process for journal submission	6. Articles are accepted for publication	4, 5
4.	1. Attending workshops 1-4 (group discussion, assignment)	1. Formative feedback from lecturers (for workshops)	1.Satisfying formative feedback from lecturers and attendance mandatory, with a minimum of 80% required	1, 2
	2. Reading assignment and analysis of a case study from related articles for qualifying examination	2. Qualifying examination rubric	2. Pass the qualifying examination	1
	3. Academic forum	3. Academic forum assessment	3. Satisfying academic forum	1, 2, 3, 4, 5, 6
	4. Proposal defense	4. Proposal assessment rubric	4. Approved research proposal	2

PLOs	Learning Activities	Assessment	Achievement Indicators	Semester
	5. Self-conducting of research and dissertation writing	5. Dissertation defense assessment rubric	5. Pass dissertation defense	6
	6. Manuscript writing	6. Peer review process for journal submission	6. Articles are accepted for publication	4, 5
5.	1. Academic forum	1. Academic forum assessment	1. Satisfying academic forum	1, 2, 3, 4, 5, 6
	2. Proposal writing	2. Proposal assessment rubric	2. Approved research proposal	2
	3. Self-conducting of research and dissertation writing	3. Dissertation defense assessment rubric	3. Pass dissertation defense	6
	4. Manuscript writing	4. Peer review process for journal submission	4. Articles are accepted for publication	4, 5
6.	1. Academic forum	1. Progress report assessment & academic forum assessment	1. Satisfying academic forum	1, 2, 3, 4, 5, 6
	2. Self-conducting of research and dissertation writing	2. Dissertation defense assessment rubric	3. Pass dissertation defense	6
	3. Manuscript writing	3. Peer review process for journal submission	4. Articles are accepted for publication	4, 5

2. Standard Verification Process for Student Achievement

1. There is a process for assessing the verification of student achievement standards in each learn activities according to the specified learning outcomes. The evaluation is conducted by both students and the curriculum administrative committee at the end of each semester.

2. There is a process for assessing the verification of student achievement standards at the program level. The overall program evaluation is conducted by graduates, employers of graduates, alumni, and external experts.

3. Graduation Requirements

Doctorate Plan 1 Dissertation only.

1. Take time to study according to the study plan.
2. Must pass a Qualifying Examination.
3. Must complete a dissertation of 48 credits and may study additional courses as agreed by the advisor, without counting the number of credits required to study throughout the course of not less than 48 credits.
4. Pass English Proficiency test following the Faculty of Graduate Studies's criteria
5. Must participate in activities to enhance work skills and social life according to the criteria of the Faculty of Graduate Studies, Mahidol University.
6. Propose Dissertation to the committee appointed by the Faculty Graduate Studies and to the public and pass oral thesis examination as the final stage
7. The complete or part of the Dissertation has to be published or accepted in at least two qualified international journals as announced by the committee, published or accepted to be published in at least one qualified international journal as announced by the committee, granted at least one patent, accepted as one innovation, or acknowledged as one creative product that can be applied commercially, socially, and economically. In the case of innovative or creative product, the thesis shall be evaluated by at least 3 external Dissertation committees from the same field or related field who are knowledgeable, experienced, and highly recognized and approved by the University Council.
8. Other requirements shall follow those that specified by the Faculty of Graduate Studies

4. Students' Appeal

Students can request or appeal following general student appeal procedure that is made available online at FGS website (https://graduate.mahidol.ac.th/appeal-system/index.php). Specific appeals regarding the assessment and facilities can also be made directly to program coordinators as well as to the program director at the program website (https://en.mahidol.ac.th/curriculum/phd/phd).

Section 8
Quality Assurance

1. Expected Learning Outcomes

The PhD program has set the ELOs or PLOs have been formulated by the feedback obtained from related stakeholders which are graduates' employers, academic staffs, alumni, and current students as well as by considering the requirements from future employers regarding career opportunities which are environmental science experts, leaders in environmental and natural resources professionals and effective researchers and academic careers. The curriculum development committee consists of the PhD program committee has generated PLOs, program philosophy, objectives of the program) and structure and specification following Standard Learning Outcomes set by the national standard and educational quality according to Announcement of TQF: HEd B.E. 2565. These cover all aspects in the moral, ethics, academic knowledge and professional capability, analytical and synthetic skills, and knowledge transfer.

Our program aims to cultivate graduates with international-level expertise in environmental and resource science. We strive to develop leaders who possess strong critical thinking, independent learning, creativity, and a strong moral compass. Graduates should possess a broad vision of environmental issues and be capable of working effectively both independently and as part of a team. Furthermore, the program emphasizes the integration of knowledge across the environmental system to enable graduates to develop innovative solutions for sustainable development. Thus, PLOs are clearly aligned with the vision and mission of MU and FERS. The PLOs are aligned with learning taxonomy, including cognitive and affective domains.

2. Program Structure and Content

The Doctor of Philosophy in Environment and Resource Studies (International Program) is designed as a research-based program that emphasizes independent research under close supervision, aligned with national educational frameworks and international academic standards. The program structure is systematically developed and governed by the Ministry of Higher Education, Science, Research and Innovation (MHESI) regulations and complies with the TQF: HEd B.E. 2558 framework, ensuring quality, relevance, and comprehensiveness.

The curriculum has undergone rigorous revisions on a five-year cycle, with the most recent revision implemented in the academic year 2022. The revision process incorporated feedback from key stakeholders, including academic staff, alumni, current and prospective students, and employers, which were integrated into curriculum improvements approved at faculty, university, and national levels.

As the program is structured around dissertation research, all academic activities are geared toward enabling students to achieve the program learning outcomes (PLOs). The alignment of learning activities with PLOs is evident in the structured use of workshops, academic forums, proposal defense, qualifying examination, and publication requirements. During the first year, students participate in a series of foundational and research methodology workshops, while milestones such as qualifying exams and proposal defenses are designed to assess students' academic readiness and research competence.

Although the program does not include credit-based coursework, optional non-credit courses and co-curricular activities, such as guest lectures and academic conferences, are offered to enhance students' academic and international experience. The academic forum encourages scholarly dialogue and reflection on ongoing research. A minimum of two peer-reviewed international publications is required for graduation, reinforcing the program's emphasis on high-quality research dissemination.

The curriculum also offers flexibility for students to pursue specialized topics through alignment with nine interdisciplinary research clusters, ranging from climate change and pollution management to sustainable agriculture and environmental policy. This cluster-based approach facilitates major and minor specialization aligned with both academic and industrial needs.

To ensure the curriculum remains relevant and responsive to societal and industrial challenges, the program conducts annual reviews of its structure and activities. Engagement with the industrial sector is promoted through collaborative research initiatives and advisory board participation, which help shape research themes with practical applications and foster innovation. All program specifications and course details are made accessible via the program's official website and through annual orientation sessions, ensuring transparency and communication with all stakeholders.

3. Teaching and Learning Approach

The program is guided by the educational philosophy of Mahidol University, which emphasizes a learner-centered approach focused on fostering academic excellence, independent inquiry, creativity, moral responsibility, and innovation. Rooted in progressivism, the program integrates outcome-based education, problem-based learning, and active learning to instill lifelong learning values in students. This philosophy is well communicated through the program website, orientation sessions, and institutional documents.

Teaching and learning activities are designed to empower students to participate actively and responsibly in the learning process. Although the program does not offer formal coursework, students engage in structured workshops, research methodology sessions, academic forums, and

progress report presentations. These activities provide opportunities for peer discussion, case analysis, and research development aligned with the program's expected learning outcomes (PLOs). Students are also encouraged to collaborate with their advisors in selecting research topics aligned with their interests and institutional or industrial needs.

Active learning is promoted through diverse methods, including interactive workshops, case studies, and problem-solving exercises. Evaluation is conducted using rubric-based assessments to ensure the quality of student performance in alignment with PLOs.

The program fosters lifelong learning through student-centered activities such as orientation programs, seminars on emerging environmental issues, participation in international conferences, and field-based learning. These initiatives aim to build critical thinking, self-directed learning, and commitment to societal contribution.

Innovation and creativity are cultivated through soft skills development programs offered by the Faculty of Graduate Studies, which include training in entrepreneurial literacy, leadership, health literacy, communication, and digital skills. Special talks by national and international experts further support an entrepreneurial mindset.

Finally, the program continuously improves its teaching and learning processes through regular stakeholder engagement, feedback mechanisms, and periodic curriculum reviews to maintain relevance to both academic standards and industry needs.

4. Student Assessment

The PhD program utilizes a range of assessment methods that are constructively aligned with PLOs. These include anti-plagiarism checks for written work, rubric-based evaluations for key assessments such as QE, progress reports, academic forums, and dissertation defenses. The program also requires peer-reviewed journal publication as a graduation requirement. These diverse methods ensure a rigorous and transparent evaluation process.

The program also aims to prepare graduates who are experts in interdisciplinary environmental research, therefore, emphasizes non-coursework assessments such as QE, progress evaluations, academic forums, proposals, and dissertation defenses which are conducted by advisors, examiners, and the PhD committee. These assessments are designed to evaluate and enhance student research performance throughout the program. Results are regularly shared with students to support continuous improvement until graduation. Furthermore, all assessments, particularly those emphasizing soft skill competencies, provide immediate feedback to students for improvement, while after QE, research proposal and dissertation defense, feedback and comments are provided individually to each student by the examining committees. This will let students learn from comments and feedback and lead them to improve their dissertation

Student assessments including timelines, methods, regulations, weight distribution, rubrics and grading criteria are explicitly described and communicated to students. The QE, dissertation proposal presentation and defense, and the Dissertation Progress Evaluation (GR.42), is made available online (https://en.mahidol.ac.th/curriculum/phd/phd) for students and other stakeholders and is also addressed during the student orientation. The methods of evaluating proposals and dissertation defenses are guided by the regulations of the FGS. All internal/external examiners are designated according to the regulations of FGS. A rubric is utilized to assign scores, ensuring a standardized and fair assessment process. Each year, the program plans to discuss the grading criteria and assessment rubrics.

These assessment policies are communicated to PhD students through announcements during orientation and are published in the PhD guidebook. The content, guidelines, and assessment criteria are also made publicly available through announcements and posted on the PhD program website and in the guidebook. The student assessment and its procedures have been continuously reviewed and improved to ensure their appropriateness and alignment. This includes the major revisions in response to curriculum updates every two years and when the feedback received from users of the assessment.

5. Academic Staff

5.1 Academic staff planning

The faculty assigns the Department of Human Resource, under the supervision of Deputy Dean of Human Resource, to manage the personnel competency and capacity by considering the faculty's main missions that are program offerings, the number of students, fields of expertise that are in consistent with the programs offered, research and academic services. The Human Resource Department has implemented management systems as well as conducted staff capacity and competency analyses by examining the academic staff capacity. For the competency assessment for the academic staff, it was categorized into 5 areas that are 1) Lecture 2) Research 3) Academic Services 4) Art and Culture Conservation, and 5) Other Administrative Tasks Assigned from the Annual Performance Appraisal Report.

Regarding the retirement, resignation or transfer of the personnel, the Human Resource Department is required to conduct both short term (1 year) and long term (5 years) personnel substitute recruitment plans and submit it for the executive team's consideration. General requirements are made according to the regulation of Mahidol University and the Faculty of Environment and Resource Studies. New faculty lecturers must hold a PhD or equivalent degree**.**

5.2 Recruitment of new faculty members

The faculty follows the guidelines and procedure in accordance with the Mahidol University Announcement entitled Standard Criteria for Recruitment, Selection, Appointment and Probation of University Employee in B.E. 2556 in recruiting new staff by appointing a selection committee, establishing qualifications for the academic staff, making application announcements, conducting theoretical as well as practical examinations and announcing the list of the applicants who passed the examinations.

For the procedure of the appointment, the faculty is required to submit the appointment request to the university since the appointment authority belongs to the university president. The university is also responsible for organizing an orientation program in government regulations, development of knowledge in teaching and organizational communication for new lecturers.

5.3 Staff-to-student ratio

Staff-to-student ratio are measured and monitored to improve the quality of education, research and service

An analysis of academic staff's teaching workloads was conducted by examining the workloads derived by the number of full-time students (FTES: Full Time Equivalent Student) and Lecturer- Full Time Student ratio.

5.4 Competences of academic staff

Training and developmental needs of academic staff are identified, and activities are implemented to fulfil them

Presently, the university encourages its lecturers to use modern teaching aids and the faculty is stimulating its lecturers to attend a training on Massive Open Online Courseware (MOOC), E-learning, apart from skill development activities in terms of publication and academic presentation. For instance, academic staffs have been sent to participate in a teaching development project for lecturers, new employee orientation, MU-Work Point program and so forth.

6. Student Support Service

6.1 Faculty of Environment and Resource Studies ensures comprehensive academic and non-academic support for PhD students through systematic short- and long-term planning. Dedicated administrative staff assist with registration, research coordination, and scheduling workshops, while IT specialists maintain digital infrastructure, and laboratory technicians support research activities. Support services are evaluated annually, with improvements guided by program committee discussions.

6.2 Student progress is systematically monitored in line with MOE and MU regulations. Major advisors provide feedback through twice-semesterly progress reports, and monthly advisory meetings are recorded and submitted to the program director. A Management

Information System (MIS) is under development to enhance tracking and communication between students and advisors.

6.3 The program promotes co-curricular and professional development through workshops on natural resource assessment, environmental technology, research methodology, and academic writing. Special Talks, PhD conferences, and orientation programs foster integration into the academic community, while expert-led training supports international professional growth.

6.4 Support staff recruitment and competency development follow structured processes aligned with defined qualifications. Staff performance is evaluated annually, with opportunities for salary advancement and professional development through training programs, seminars, and conferences.

6.5 Student support services, including library resources, laboratory facilities, and IT services, undergo annual evaluations. Student satisfaction surveys guide improvements, and the Plan-Do-Check-Act (PDCA) cycle ensures that services adapt to evolving academic and research needs.

These integrated services collectively create a supportive academic environment that enhances student success, research excellence, and personal development throughout the PhD program.

7. Facilities and Infrastructure

The Faculty of Environment and Resource Studies provides comprehensive facilities and infrastructure to support effective learning, research, and student well-being.

7.1 Physical Resources

Classrooms are equipped with projectors, internet, audio-visual systems, microphones, and air conditioning, with regular maintenance. PhD students have access to shared common rooms and fully equipped computer labs, including a specialized GIS lab. Student satisfaction with facilities is assessed regularly.

7.2 Laboratory Facilities

Laboratories feature modern, regularly calibrated instruments, accessible via a QR code system at no cost to students. Safety measures comply with ESPReL and ISO/IEC 17025:2017 standards, supported by online safety training, provision of PPE, and emergency response training. Annual surveys guide maintenance and improvements.

7.3 Digital Library and IT Services

The university's digital library provides e-books, journals, and interlibrary loans via EBSCO, with VPN access for remote use. IT services offer licensed software (e.g., SPSS, MATLAB, MS Office) and support for geospatial research, digital media production, online learning platforms, and video conferencing.

7.4 Campus Infrastructure and Student Well-being

Students benefit from free shuttle services, the Salaya Link bus, and comprehensive health services, including mental health and medical centers. Sports facilities include a fitness center, pool, athletics track, and courts. The Mahidol University Frontier Research Facility (MU-FRF) offers advanced research instrumentation.

7.5 Environmental, Health, and Safety Standards

The faculty complies with ISO 14001 and ISO 45001 standards, ensuring environmental and occupational safety. Accessibility features, fire prevention systems, emergency response plans, and regular drills are in place, supported by a Business Continuity Plan to ensure operational resilience.

8. Output and Outcomes

The program monitors all enrollees' progress and notifies students about their registration each semester. From 2015 to 2024, the program saw a steady average enrollment of 4.1 students per year. The average PhD program lasts 4.9 years, exceeding the standard set by the FGS and our program. For the next self-benchmarking exercise, the program will assess students' time to complete the QE within the first semester. The goal for the proposal defense is set for within three semesters, and the dissertation defense is set for within three years.

Although the first-year drop rate over the past decade was 12.2%, this was commonly due to health issues and financial problems and the rate was not caused by unsuccessful dissertation defense. Encouragingly, since 2023, enrollment has risen as the impact of COVID-19 has lessened, supported by active outreach through new channels like Facebook and increased access to Mahidol University's PhD scholarships.

The program tracks graduation and employment status for students enrolled between 2014–2018, while those from 2019–2022 are still studying. The program also monitors career advancement and gathers employer feedback, using responses to improve graduate quality and program effectiveness.

Research and creative work output and activities carried out by the academic staff and students show that students conduct research aligned with university and faculty goals, such as natural resource management and energy-saving innovations like solar dome projects that benefit both research and local communities. We also track the number of citations of students' publications to monitor the utility and impact of their research.

The program has established PLOs and, as a research-only program, offers various workshops to support learning. Evaluation methods include observation, participation in discussions, and rubric-based assessments for both the qualification and dissertation exams. A semesterly evaluation of PLO attainment for students and alumni has been introduced to enhance program quality. The program also conducts satisfaction assessments with staff, students, alumni, and alumni employers based on

the five expected program learning outcome areas. Current students have several channels to provide feedback, including progress reports, a semesterly academic forum, and an annual orientation that brings together first-year students, alumni, advisors, and PhD committee members. This allows students to express concerns and engage in discussions to develop action plans for improvement. Feedback is also gathered through faculty-provided surveys, and alumni satisfaction is collected upon graduation. Employer satisfaction with alumni is continuously assessed with support from the FGS.

Section 9
Evaluation, Improvement, and Implementation

1. Assessment of Teaching Effectiveness

1.1 Assessment of Teaching Effectiveness in Course Level

1.1.1 Observing students' interaction and responses

1.1.2 Asking for feedback from students

1.1.3 Analysis from students' evaluation to identify the weaknesses and strengths of the instructors and improve the teaching strategies

1.1.4 Analyze the students' weaknesses and strengths for improving the appropriate teaching strategies

1.1.5 Pre-, on process, and post-meeting of instructors and program administrative committees to discuss the academic forum and progress report

In the academic forum and progress report, students will gain an opportunity to present and communicate their research in order to transfer knowledge to the other students. Observing students' interaction and presentation are crucial for evaluating teaching strategies. Moreover, these activities will be a chance for hearing the problems and limitations of each student and providing guidance from instructors and program administrative committees.

The meeting of instructors and program administrative committees will be organized at least three times (pre-, on the process, and post-academic forum) to evaluate the students' performance. Students are also involved in evaluating the teaching strategies of each program committee and instructor, including giving perspective that is beneficial to improve the program in the future.

1.2 Assessment of the Instructor's Skills in Applying Teaching Strategies

1.2.1 Analysis of student evaluations towards courses and instructors such as teaching strategies, punctuality, goal, course objectives, measurement and evaluation criteria, and teaching materials

1.2.2 Evaluation from instructors themselves and colleagues

Students can be a part of developing the teaching quality and teaching strategies of each instructor by jointly evaluating the teaching strategies of each instructor by giving scores on teaching strategies, punctuality, goal, course objectives, measurement and evaluation criteria, and teaching materials.

2. Overall Evaluation of the Program

2.1 Survey instructors' opinions toward students and vice versa

2.2 Survey on jobs of graduates

2.3 Curriculum evaluation from external expert

2.4 Survey on employers' satisfaction with graduates

3. Assessment of the Program Implementation Based on the Program Specification

In this regard, the university has stipulated that the program should be modernized by updating the education standards and quality at least every three years, and evaluation for continuous curriculum development every five years. PDCA process is deployed for curriculum development. Improvement based on collecting all information, advice, feedback and evaluations of the current students, graduate employers, alumni, experts and perspective students, and then the faculty member in - charge of the program review and analyze the above information.

4. Review of Evaluation Results and Plans for Improvement

4.1 Collecting all information, advice, and evaluations of the new graduates, users / stakeholders, and experts

4.2 Review and analyze the above information by the faculty member in - charge of the program

4.3 Presenting the improvement plan for the program

5. Risk Management

5.1 Quality planning ensures that the PhD program meets academic and research excellence standards. This includes:

- **Admission Criteria**: Establishing rigorous entry requirements, such as prior research experience, English and academic qualifications, and concept paper assessment.
- **Supervisory Framework**: Assigning qualified and experienced faculty members to guide students, with clear expectations on roles and responsibilities.
- **Research Training and Development**: Providing structured training in research methodologies, ethics, and professional development through workshops
- **Progress Milestones**: Setting clear benchmarks for research progress, such as qualifying examination, proposal defense, and thesis submission.

5.2 Quality control involves monitoring and evaluating the PhD process to maintain academic integrity. This includes:

- **Regular Progress Reviews**: Conducting periodic progress assessments through progress reports, academic forum, and supervisory meetings

- **Peer Review and Feedback**: Encouraging participation in academic conferences and journal submissions to receive external validation of research quality.
- **Thesis Examination Process**: Implementing a rigorous evaluation system, including external examiners, before thesis approval.

5.3 Risk Management: Identifying and mitigating potential risks ensures smooth research progression.

- **Supervision Issues**: Having mechanisms for students to report concerns or request a change of supervisor if necessary.
- **Research Ethics and Compliance**: Enforcing strict adherence to ethical guidelines and institutional review board (IRB) approvals.
- **Project Continuity**: Providing contingency plans for funding, data loss, or research scope adjustments in case of unforeseen challenges.
- **Mental Health and Well-being Support**: Offering university counseling services to manage PhD stress.

5.4 Handling Complaints and Appeals: To address grievances fairly and transparently, universities implement:

- **Formal Complaint Procedures**: Allowing students to raise concerns related to supervision, resources, or academic decisions through designated program director, faculty and university channels.
- **Academic Appeals Process**: Enabling students to appeal against examination results, academic misconduct accusations, or administrative decisions, with a structured review panel.
- **Mediation and Support Services**: Providing program co-ordinator or independent mediation services for dispute resolution.

5.5 Financial management

- **Funding Security for student:** Diversify Funding Sources such as scholarships, teaching assistantships, research assistantships, fellowships, and grants—students often combine these to avoid over-reliance on a single source.

Appendices in Program Booklet

Revised Program B.E. 2570

Appendix 1	Mahidol University Degree Profile
Appendix 2	2.1 Program-Level Learning Outcomes and Sub Outcomes (PLOs and SubPLOs) 2.2 Relationship between Program Learning Outcomes and Characteristics of Mahidol University Graduates 2.3 Expected Learning Outcomes at the End of Academic Year
Appendix 3	3.1 Table Showing Relationship between Program-Level Learning Outcomes (PLOs) and Learning Outcome Standards in Accordance with Thai Qualifications Framework for Higher Education 3.2 Table Showing Relationship Between Program-Level Learning Outcomes (PLOs) and Stakeholder Needs/Expectations.
Appendix 4	4.1 Program learning outcomes-based curriculum mapping *Represented by Symbols I, R, P, M*
	4.2 Curriculum Mapping Represented by Symbols ● Primary Responsibility □ Secondary Responsibility Note: Show Appendix 4.2 only in the case that the Professional Council or the academic association of the field of study continues to require the Thai Qualifications Framework for Higher Education in original format.
Appendix 5	Details of the program instructors in-charge, regular instructors, and special instructors
Appendix 6	Course Description
Appendix 7	Essence of Program Revision B.E. 2570 edition
Appendix 8	MU.7 Report on the Operation Results of Program of Academic year 2024
Appendix 9	Course Specification

Appendix 1

MU Degree Profile

MU Degree Profile

(Revised Program)

Graduate Program Level		
หัวข้อ	**Program Year (B.E.) 2565 (Current Program)**	**Program Year (B.E.) 2570 (Revising Program)**
Program Title		
(In Thai)	หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาสิ่งแวดล้อมและทรัพยากรศาสตร์ (หลักสูตรนานาชาติ)	หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาสิ่งแวดล้อมและทรัพยากรศาสตร์ (หลักสูตรนานาชาติ)
(In English)	Doctor of Philosophy Program in Environment and Resource Studies (International Program)	Doctor of Philosophy Program in Environment and Resource Studies (International Program)
Degree Offered		
(In Thai)	ปรัชญาดุษฎีบัณฑิต (สิ่งแวดล้อมและทรัพยากรศาสตร์)	ปรัชญาดุษฎีบัณฑิต (สิ่งแวดล้อมและทรัพยากรศาสตร์)
(In English)	Doctor of Philosophy (Environment and Resource Studies)	Doctor of Philosophy (Environment and Resource Studies)
General Information of the Program		
Type of program	Plan A	Plan 1
Number of Credits	48	48
Study Duration / Program Cycle	3 years	3 years
Program Status and Program Schedule	1. Program starting in 2022. 2. Program opens in semester one and two.	1. Program starting in 2027. 2. Program opens in semester one and two.
Degree Granting	One degree with one major	One degree with one major
Degree-granting Institutions (MOU with other institutions)	None	None
Accreditation Institution	None	None
Specific information of the program		
Goals & Objectives	Goals: n/a Objectives:	Goals: n/a Objectives:

Graduate Program Level		
หัวข้อ	**Program Year (B.E.) 2565 (Current Program)**	**Program Year (B.E.) 2570 (Revising Program)**
	By the end of the study, students are able to that meet the graduate qualification standards as follows: 1. Demonstrate moral ethics with academic honesty and reliability as a professional in the field of environment and natural resource research; 2. Knowledgeably and comprehensively understand the principles and theories related to the fields of environment and resource management and conduct self-directed learning and follow the advances in academics and technology in those fields; 3. Analyze and criticize research and conduct research of the environment and resources based on professional morals and using correct procedures of research; 4. Work cooperatively with leadership and high responsibility for assigned work; 5. Apply information technology to mathematical and statistical analysis, compilation and discussion for conducting research, research presentation and dissemination.	The graduates will meet the following graduate qualification standards: 1. Demonstrate ethical conduct, academic integrity, and professional reliability in environmental and natural resource management research; 2. Demonstrate a comprehensive understanding of the principles and theories in environmental and natural resource management, engage in self-directed learning, and remain updated on academic and technological advancements in the field; 3. Creatively research design, critically analyse, and criticize research in the field of environmental and natural resource management; 4. Utilize information technology for mathematical and statistical analysis, data compilation, and interpretation to conduct research, as well as for research presentation and dissemination. 5. Demonstrate leadership and the ability to work collaboratively across diverse cultural and geographic contexts while maintaining a high level of responsibility for assigned tasks.

Graduate Program Level		
หัวข้อ	**Program Year (B.E.) 2565 (Current Program)**	**Program Year (B.E.) 2570 (Revising Program)**
Distinctive Features	This program is research-oriented program that focuses on producing doctoral graduates with a knowledge of innovation and the science of integrated natural resource and environment management and the ability to apply that knowledge to manage natural resources and the environment with efficiency. This program focuses on the process of developing the student to be a person with high level expertise in environment and resources science, able to learn independently, creatively, morally, have wide vision, can work both independently and with a team, be a leader in environmental science, able to integrate the overall knowledge of the environmental system and produce innovative products for the benefit of sustainable development.	This program is research-oriented program that emphasizes independent research under close supervision, aligned with national educational frameworks and international academic standards. In addition, Mahidol University is committed to the objective of achieving a "Real World Impact," aiming to foster synergy among all stakeholders in order to collaborate effectively in addressing societal challenges for the betterment of humanity. This program is dedicated to producing doctoral graduates with expertise in innovative and integrative environmental and natural resource management. Graduates will be equipped with the knowledge and skills necessary to effectively apply scientific principles to environmental and natural resource management with efficiency and sustainability.
Educational System	Two Semester Credit system. One Academic Year consists of 2 Regular Semesters	Two Semester Credit system. One Academic Year consists of 2 Regular Semesters
Graduates' advancement		
Career opportunities	1. Environmental science expert at the state, national and regional level 2. Leaders in environmental and	1. University lecturer and researcher specializing in environmental and natural resource management at higher education institutions.

Graduate Program Level		
หัวข้อ	**Program Year (B.E.) 2565 (Current Program)**	**Program Year (B.E.) 2570 (Revising Program)**
	natural resources professionals 3. Effective researchers and academic careers (lecturers and teachers).	2. Environmental policy expert developing and advising on environmental sustainability policies for both government and private sector organizations. 3. Sustainability expert leading corporate sustainability initiatives and Environmental, Social, and Governance (ESG) strategies, 4. Independent environmental consultant providing expertise in assessing and mitigating environmental impacts in the private sector. 5. Environmental and natural resource management specialist working with NGOs and international organization at the state, national, and regional levels
Further fields of study	None	None
Philosophy in program administration		
Educational Philosophy	Focus on the process of developing the student to be a person with high level expertise in environment and resources science, able to learn independently, creatively, morally, have wide vision, can work both independently and with a team, be a leader in environmental science, able to integrate the overall knowledge of the environmental system and produce innovative	Emphasizing the development of students into academic professionals with advanced knowledge, skills, and expertise in environmental and natural resource management. The program fosters independent and creative learning, ethical responsibility, and a broad perspective. Graduates will be well-prepared to work both independently and collaboratively, demonstrating adaptability to

Graduate Program Level		
หัวข้อ	**Program Year (B.E.) 2565 (Current Program)**	**Program Year (B.E.) 2570 (Revising Program)**
	products for the benefit of sustainable development.	disruptive challenges and emerging technologies in both present and future contexts.
Strategy / teaching guidelines	Research oriented processes, supervisory guide, multidisciplinary approach, Transformative Learning, Problem-based Learning, Evidence and Data-based Learning, Life Long Learning	Research oriented processes, supervisory guide, multidisciplinary approach, Transformative Learning, Problem-based Learning, Evidence and Data-based Learning, Life Long Learning
Strategy / student's evaluation guidelines	The research progress is evaluated by the program committee and dissertation advisor based on the student's presentation of progress reports twice a semester. The research process shall be evaluated by the dissertation advisor every time of consultation during conduction of the research. The final oral examination is systematically evaluated by the graduate committee following the standards of the Faculty of Graduate Studies, Mahidol University. In addition, the research outputs or part(s) of dissertation must be published in the international journals indexed in the international databases as announced by Faculty of Graduate Studies, Mahidol University.	The research progress is evaluated by the program committee and dissertation advisor based on the student's presentation of progress reports twice a semester. The research process shall be evaluated by the dissertation advisor every time of consultation during conduction of the research. The qualifying examination is also evaluated by the program committee and dissertation advisor based on the student's presentation. The proposal defense is progress is evaluated by the proposal committee and dissertation advisor based on the student's presentation and dissertation book. The final oral examination is systematically evaluated by the graduate committee following the standards of the Faculty of Graduate Studies, Mahidol University. In addition, the research outputs or part(s) of dissertation must

Graduate Program Level		
หัวข้อ	**Program Year (B.E.) 2565 (Current Program)**	**Program Year (B.E.) 2570 (Revising Program)**
		be published in the international journals indexed in the international databases as announced by Faculty of Graduate Studies, Mahidol University.
Competences provided to the students		
Generic Competences	1. Professional ethics and Responsibility 2. Communication (Writing/ Presenting) 3. Human and animal ethics	1. Professional ethics and Responsibility 2. Communication (Writing/ Presenting) 3. Human and animal ethics
Subject-specific Competences	1. Data analysis 2. Problem identification 3. Develop organizing principles to effectively sort and evaluate data 4. Applying tools 5. Data integration 6. Research methodology 7. Project management 8. Innovation	1. Data analysis 2. Problem identification 3. Develop organizing principles to effectively sort and evaluate data 4. Applying tools 5. Data integration 6. Research methodology 7. Project management 8. Innovation
Graduates' learning outcomes		
	At the end of the program, successful students will be able to: PLO1 Demonstrate moral ethics as a professional in the field of environment and natural resource research PLO2 Analyze the complex relationships between natural and human systems	At the end of the program, successful students will be able to: PLO1 Demonstrate moral ethics as a professional in the field of environment and natural resource research PLO 2 Demonstrate proficiency in academic communication through effective speaking and writing skills

Graduate Program Level		
หัวข้อ	**Program Year (B.E.) 2565 (Current Program)**	**Program Year (B.E.) 2570 (Revising Program)**
	PLO3 Solve environmental problems using accurate information, technology and modern tools PLO4 Integrate facts, concepts, and methods from multidisciplinary approaches to make ethical and informed judgments on complex environmental issues PLO5 Create novel interdisciplinary research studies for sustainable development at the state, national and regional level in terms of publication and innovation	PLO 3 Analyze theories, principles, and interrelationships between environmental challenges and the humanities PLO 4 Solve environmental problems using accurate information, technology and modern tools PLO 5 Integrate facts, concepts, and methods from multidisciplinary approaches to make well-informed academic decisions on complex environmental issues PLO 6 Create novel interdisciplinary research studies for sustainable development at the state, national and regional levels in terms of publication and innovation
Dissemination of program information	Dissemination of program information on the Faculty of Graduate Studies website: https://graduate.mahidol.ac.th/	

Example programs offered by other universities in Thailand or abroad (at least 3 universities)

1. Chulalongkorn University - Doctor of Philosophy Program in Environment, Development and Sustainability (International Program)
2. King Mongkut's University of Technology Thonburi (KMUTT), The Joint Graduate School of Energy and Environment (JGSEE) - Doctor of Philosophy Program in Environment, Climate Change and Sustainability
3. Prince of Songkla University - Doctor of Philosophy Program in Environmental Management (International Program)

Comparable Thai or overseas universities that are competitors in developing or reforming the program

1. Prince of Songkla University - Doctor of Philosophy Program in Environmental Management

(International Program)

Overall program performance in the past 5 years

1. Statistics of student admission and graduation (in the past 5 years) (Research only, no studying coursework)

Student ID	No. of Prospective Students	No. of Applicants	No. of Students Accepted	No. of Student Status Termination	No. of Student Graduation	No. of Student on process of Studying	English Procifiency		Thesis Progress						Awaiting Publication
							Passed	Not Pass	1	2	3	4	5	6	
2563	3	5	1	0	-	-	1	-	-	-	-	-	-	1	1
2564	3	8	4	0	-	-	4	-	1	-	-	-	3	-	0
2565	3	2	1	0	-	-	1	-	-	-	-	-	-	1	1
2566	3	11	5	2	-	-	3	-	1	-	-	-	2	-	0
2567	3	11	6	0	-	-	3	3	5	1	-	-	-	-	0
Total	**15**	**37**	**17**	**2**			**12**	**3**	**7**	**1**			**5**	**2**	**2**

1 = No Action Taken
2 = Pass Comprehensive/Qualification Examination
3 = Thesis/Thematic Advisor Appointed
4 = Thesis/Thematic Paper Proposal Examination Taken
5 = Thesis/Thematic Comittee Appointed
6 = Thesis/Thematic Paper Defence Examination Taken

2. Student Employment Rate in the past 5 years

Year of Graduation	Successfully Employed			Unemployed	Further Study
	Got a Job within the Field of Study	Got a Job in Other Fields	Not specified		
2563	2	0	0	0	0
2564	1	0	0	0	0
2565	2	0	0	1	0
2566	2	0	0	1	0
2567	2	0	0	0	0

Note: Information can be found in the GRAD MIS system

3. Satisfaction of Master's and Doctoral Students in the past 3 years

Academic Year	No. of Graduate Students being Employed	No. of Graduate Students Answering Questionnaire	Percentage	Satisfaction Level of Graduate Students	Suggestions from Graduate Students
2565	2	3*	100	4.38	
2566	2	3*	100	4.84	
2567	2	2	100	4.85	

Note: Use the symbol “NA” for Items 3 and 4 if the program has no graduates

*one of them is unemployed

4. Needs and Expectations of Key Stakeholders

Academic Year	Lists of Stakeholders from a Survey	Needs and Expectations of Key Stakeholders	Stakeholder Feedback
2566	1. Employers	- Have good attitude, teamwork skill, English skill that are needed for academic work - Solve issues such as pollution in future by using new technology - Integration skills own research for industrial sectors and society - Boost up integration skills or set research problems for students based on integration of multidisciplinary fields - Create publications or innovation related to the environment and resource studies serves as an indication of the quality of learning and mastery of skills	- Boost up integration skills or set research problems for students based on integration of multidisciplinary fields
	2. Alumni	- Have knowledges on related environmental disciplines - Integrate and apply their knowledge or finding to solve	- Have knowledges on research skills i.e. Writing publication and patent.

Academic Year	Lists of Stakeholders from a Survey	Needs and Expectations of Key Stakeholders	Stakeholder Feedback
		environmental issues.	
	3. Current students	- Need the process for research ethics such as human ethics	- Workshops in research skills i.e. writing publication
	4. Academic staffs	- Have moral ethics as a professional in the field - Have in-depth knowledge of environmental and resource management in areas of interest or work to students and knowledgeable about environmental issues and other resources in addition to their own interests/responsibilities. - Understand and systematically analyze cause and effect of environmental problem as well as to solve problems using effective tools. - Design and apply research finding to solve environmental problem - Integrate environmental knowledges to practices and/or management. - Create environmental research in terms of publication and disseminate to public.	
	5. Perspective students	- Analyze and solve complex environmental problem using appropriate approach. - Integrate research with local, communities or national level to manage environmental	- Focus on boosting integrating skill for students to integrate their knowledge for real practices.

Academic Year	Lists of Stakeholders from a Survey	Needs and Expectations of Key Stakeholders	Stakeholder Feedback
		problems. - Applied their research for commercial perspective.	
2568	1. Alumni	- Academic writing workshop - Workshop in writing academic publication - Training for professional academic presentation - Workshop of Canva or other program for develop presentation - Should have a study visit to explore the area that reflect good practice of relationship between human and environment to meet sustainable development - Provide a platform that gathers interesting workshops for designing to present statistical data	- Some laboratory equipment is quite old, causing delays in operations and preventing work from proceeding according to plan - Most students, especially those who are working, sometimes forget these basic concepts or need to be reskill - Presenting in progress report and academic forum regularly, it helps PhD student to practice their opportunities in international presentation
	2. Current students	- More training related to analyzing data - Widen the academic knowledge and understanding of the research focusing problem-solving oriented - Explore the fields that student familiar with and integrate with the theoretical knowledge	- Get the proper guidance and good facilitations to conduct our research

Academic Year	Lists of Stakeholders from a Survey	Needs and Expectations of Key Stakeholders	Stakeholder Feedback
	3. Academic staffs	- Deep understanding of environmental science across physical, biological, and social dimensions. - Ability to apply interdisciplinary knowledge (e.g., economics, public policy). - Proficient in modern technologies (AI, Big Data, GIS, IoT, Remote Sensing). - Skilled in advanced research methodologies (quantitative & qualitative). - Knowledge of national and international environmental laws and policies. - Critical thinking and theory development tailored to specific contexts. - Understanding of environmental entrepreneurship and innovation. - Able to communicate scientific knowledge to diverse stakeholders. - Analytical thinking, problem-solving, strong English, and quantitative skills. - Independent and advanced research design and execution. - Cross-disciplinary knowledge integration for holistic problem-solving.	- Organize joint seminars with other universities at least once a semester. - Design individualized semester plans and program outcomes tailored to each student's background and research. - Improve communication between the curriculum and academic staff. - Encourage knowledge exchange networks at local and international levels. - Ensure doctoral students create new, applicable knowledge for a rapidly changing society. - Maintain balance between basic science, cross-disciplinary collaboration, and real-world application in curriculum reform.

Academic Year	Lists of Stakeholders from a Survey	Needs and Expectations of Key Stakeholders	Stakeholder Feedback
		- Proficient in data analysis and environmental modeling tools. - Scientific writing and presentation at the international level. - Project leadership, teamwork, and stakeholder collaboration. - Policy analysis and sustainable innovation development. - Grant writing and securing research funding. - Lifelong learning and adaptability to new technologies and trends. - Ethical responsibility and social awareness in research.	

5. Survey results of student satisfaction toward graduate programs in the past 5 academic years

Topics	Academic Years				
	2563	**2564**	**2565**	**2566**	**2567**
1. Structure and course contents of the program	4.35	4.0	4.28	4.73	4.77
2. Lecturers	4.27	4.32	3.9	4.34	4.91
3. Major Advisor Aspect	4.45	4.44	4.3	4.65	5.0
4. Teaching and learning management of program	n/a	n/a	n/a	4.21	4.69
5. Student development and activities	4.10	4.09	3.6	4.25	4.73
Overview of student satisfaction on the program	4.29	4.21	4.02	4.43	4.82

Note: Information can be found in the GRAD MIS system

Appendix 2

Appendix 2.1 Program-level Learning Outcomes and Sub Program-level Learning Outcomes (PLOs and SubPLOs)

- No sup PLOs-

Appendix 2.2 Relationship between Program-Level Learning Outcomes and Desirable Characteristics of Mahidol University Graduates

4 MU-Graduate Attributes	Program Learning Outcome					
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
T-shaped Breadth & Depth: Understanding thoroughly both breadth & depth			x	x	x	x
Globally Talented: Having talented and experiences to contending against globally		x				x
Socially Contributing: Having a public consciousness advantaging to the society	x	x			x	x
Entrepreneurially Minded: Decisively thinking, doing, making a decision to accordingly contributing creativity	x					x

Appendix 2.3 Expected learning outcomes of students in each year of study at the end of academic year according to the 3-year study plan.

PLOs	1st Year	2nd Year	3rd Year
1	Understand moral ethics in the field of environment and natural resource research	Demonstrate moral ethics as a professional in the field of environment and natural resource research	Demonstrate moral ethics as a professional in the field of environment and natural resource research
2	Demonstrate ability in academic communication through effective speaking and writing skills	Demonstrate intermediate ability in academic communication through effective speaking and writing skills	Demonstrate proficiency in academic communication through effective speaking and writing skills
3	Explain theories, principles, and interrelationships between environmental challenges and the humanities	Analyze theories, principles, and interrelationships between environmental challenges and the humanities	Analyze theories, principles, and interrelationships between environmental challenges and the humanities
4	Explain environmental problems using information, technology and modern tools	Identify environmental problems using accurate information, technology and modern tools	Solve environmental problems using accurate information, technology and modern tools
5	Apply facts, concepts, and methods from multidisciplinary approaches to develop research tools for complex environmental issues	Evaluate facts, concepts, and methods from multidisciplinary approaches to make well-informed academic decisions on complex environmental issues	Integrate facts, concepts, and methods from multidisciplinary approaches to make well-informed academic decisions on complex environmental issues
6	Determine novel interdisciplinary research studies for sustainable	Criticize novel interdisciplinary research studies for sustainable development at the	Create novel interdisciplinary research studies for sustainable development at the

	development for further application	state, national and regional levels in terms of publication and innovation	state, national and regional levels in terms of publication and innovation

The PLOs and associated learning activities, assessments, and achievement indicators by year of study according to the 3-year study plan

Year of Study	PLO	Learning Activities	Assessment	Achievement Indicators
Year 1 (Foundation, QE & Proposal)	1	Attending Workshops 1-3/training (group discussion, assignment); Proposal Defense.	Formative feedback from lecturers (for workshops); Proposal Assessment Rubric.	Satisfying formative feedback from lecturers and attendance mandatory, with a minimum of 80% required; Approved research proposal.
	2	Attending Workshops 1-4/training (group discussion, assignment); Proposal writing; Proposal Defense.	Formative feedback from lecturers (for workshops); Proposal Assessment Rubric.	Satisfying formative feedback from lecturers and attendance mandatory, with a minimum of 80% required; Approved research proposal.
	3	Attending Workshops 1-3; Reading assignment and analysis of a case study from related articles for the Qualifying Exam; Proposal writing; Proposal Defense.	Formative feedback from lecturers (for workshops); Qualifying Examination Rubric; Proposal Assessment Rubric.	Satisfying formative feedback from lecturers and attendance mandatory, with a minimum of 80% required; Pass the qualifying examination;

Year of Study	PLO	Learning Activities	Assessment	Achievement Indicators
				Approved research proposal.
	4	Attending Workshops 1-4; Reading assignment and analysis of a case study from related articles for the Qualifying Exam; Proposal Defense.	Formative feedback from lecturers (for workshops); Qualifying Examination Rubric; Proposal Assessment Rubric.	Satisfying formative feedback from lecturers and attendance mandatory, with a minimum of 80% required; Pass the qualifying examination; Approved research proposal.
	5	Attending Academic Forum; Proposal writing; Proposal Defense.	Academic Forum Assessment; Proposal Assessment Rubric.	Satisfying academic forum assessment; Approved research proposal.
	6	Attending Academic Forum; Proposal writing; Proposal Defense.	Progress Report Assessment & Academic Forum Assessment; Proposal Assessment Rubric.	Satisfying academic forum assessment; Approved research proposal.
Year 2 (Ethics, Progress & Manuscript)	1	Working out with human/animal ethics application.	Human/animal ethics assessment.	No ethical misconduct with human/animal ethics approval.
	2	Presentation in progress report and academic forum; Manuscript writing.	Progress report assessment & academic forum assessment; Peer Review Process for journal submission.	Satisfying progress report and academic forum; Articles are accepted for publication.

Year of Study	PLO	Learning Activities	Assessment	Achievement Indicators
	3	Presentation in academic forum; Manuscript writing.	Academic Forum Assessment; Peer Review Process for journal submission.	Satisfying academic forum assessment; Articles are accepted for publication.
	4	Presentation in academic forum; Self-conducting of research and dissertation writing; Manuscript writing.	Academic Forum Assessment; Peer Review Process for journal submission.	Satisfying academic forum assessment; Articles are accepted for publication.
	5	Self-conducting of research and dissertation writing; Manuscript writing.	Peer Review Process for journal submission.	Articles are accepted for publication.
	6	Self-conducting of research and dissertation writing; Manuscript writing.	Peer Review Process for journal submission.	Articles are accepted for publication.
Year 3 (Execution & Defense)	1	Dissertation writing; Manuscript writing.	Anti-plagiarism check for written assignment and thesis/dissertation. Peer Review Process for journal submission.	Pass the anti-plagiarism check. Articles are accepted for publication.
	2	Presentation in progress report and academic forum; Dissertation writing; Manuscript writing.	Progress report assessment & academic forum assessment; Dissertation Defense Assessment Rubric. Peer Review Process for journal submission.	Satisfying progress report and academic forum; Pass dissertation defense. Articles are accepted for publication.
	3	Dissertation writing; Manuscript writing.	Dissertation Defense Assessment Rubric. Peer	Pass dissertation defense. Articles are

Year of Study	PLO	Learning Activities	Assessment	Achievement Indicators
			Review Process for journal submission.	accepted for publication.
	4	Self-conducting of research and dissertation writing; Manuscript writing.	Dissertation Defense Assessment Rubric. Peer Review Process for journal submission.	Pass dissertation defense. Articles are accepted for publication.
	5	Self-conducting of research and dissertation writing; Manuscript writing.	Dissertation Defense Assessment Rubric. Peer Review Process for journal submission.	Pass dissertation defense. Peer Review Articles are accepted for publication.
	6	Self-conducting of research and dissertation writing; Manuscript writing.	Dissertation Defense Assessment Rubric. Peer Review Process for journal submission.	Pass dissertation defense. Articles are accepted for publication.

Appendix 3

3.1 Table Showing Relationship between Program-Level Learning Outcomes (PLOs) and Learning Outcome Standards in Accordance with Thai Qualifications Framework for Higher Education

Learning Outcome Standards in Accordance with Thai Qualification Framework for Higher Education Year B.E. 2565	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
1. Knowledge						
1.1 Capable of employing research methodologies to generate new concepts or advance knowledge in the field of environmental and natural resource management			x			
1.2 Capable of applying research findings to holistic problem-solving and diverse contexts				x	x	
2. Skills						
2.1 Capable of creatively designing, collecting, analyzing, and interpreting data using appropriate research methodologies			x	x		x
2.2 Capable of evaluating, synthesizing, and critically analyzing scientific literature to support research findings			x		x	x
2.3 Capable of proposing innovative solutions for complex problem-solving and decision-making					x	x
2.4 Capable of effectively communicating complex environmental issues to policymakers, stakeholders, and the public		x				
2.5 Capable of utilizing information technology for self-learning, research presentation, and dissemination		x		x	x	
3. Ethics						

3.1 Capable of demonstrating respect for rules and regulations in accordance with professional ethics	x					
3.2 Capable of demonstrating academic integrity and prioritizing societal benefits	x				x	
4. Character						
4.1 Capable of embodying Mastery, Altruism, Harmony, Integrity, Determination, Originality, and Leadership in alignment with Mahidol University's core values	x				x	x
4.2 Capable of working collaboratively across diverse cultural and geographic contexts to develop region-specific environmental solutions		x				x
4.3 Capable of continuous professional development to enhance expertise and remain responsive to changes in the era of disruptive technology.			x	x	x	x

3.2 Table Showing Relationship Between Program-Level Learning Outcomes (PLOs) and Stakeholder Needs/Expectations.

Stakeholders		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
Group	**Needs/Expectations**						
Students	- Need the process for research ethics such as human ethics	x					
	- Have knowledges on related environmental disciplines			x			
	- Have knowledges on research skills i.e. writing publication and patent.		x				x
Instructors	- Have moral ethics as a professional in the field	x					
	- Have in-depth knowledge of environmental and resource management in areas of interest or work to students and knowledgeable about environmental issues and other resources in addition to their own interests/responsibilities.			x			
	- Understand and systematically analyze cause and effect of environmental problem as well as to solve problems using effective			x			

Stakeholders		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
Group	**Needs/Expectations**						
	tools.						
	- Design and apply research finding to solve environmental problem				x		
	- Integrate environmental knowledges to practices and/or management.					x	
	- Create environmental research in terms of publication and disseminate to public.						x
	- Proficient in data analysis and environmental modeling tools.				x		
	- Scientific writing and presentation at the international level.		x				
Alumni	- Have knowledges on related environmental disciplines			x			
	- Integrate and apply their knowledge or finding to solve environmental issues.					x	
	- Have knowledges on research skills i.e. writing publication and patent.		x				x
Employer	- Have good attitude,	x	x				

Stakeholders		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
Group	**Needs/Expectations**						
	teamwork skill, English skill that are needed for academic work						
	- Solve issues such as pollution in future by using new technology				x		
	- Boost up integration skills or set research problems for students based on integration of multidisciplinary fields					x	
	- Create publications or innovation related to the environment and resource studies serves as an indication of the quality of learning and mastery of skills.						x
Perspective students	- Analyse and solve complex environmental problem using appropriate approach			x	x		
	- Integrate research with local, communities or national level to manage environmental problems.					x	
	- Focus on boosting integrating skill for students to integrate their knowledge					x	

Stakeholders		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
Group	**Needs/Expectations**						
	for real practices.						
	- Applied their research for commercial perspective.					x	

Appendix 4

Curriculum Mapping

Appendix 4.1 Curriculum Mapping

Table 1 Compulsory Courses in Accordance with Study Plan

Course Codes & Course Titles	Number of Credits	Program-Level Learning Outcomes (PLOs)					
		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
First Year							
Semester 1							
ENID 898 Dissertation (QE, proposal development)	2 (0-6-0)	R	R	R	-	-	-
Semester 2							
ENID 898 Dissertation (proposal defense)	8 (0-24-0)	R	R	R	R	-	-
Second Year							
Semester 1							
ENID 898 Dissertation (Data collection and data analysis)	10 (0-30-0)	M	M	M	M	M	-
Semester 2							
ENID 898 Dissertation (Data collection and data analysis, manuscript submission)	10 (0-30-0)	M	M	M	M	M	M
Third Year							
Semester 1							
ENID 898 Dissertation (Data collection and data analysis, manuscript submission)	10 (0-30-0)	M	M	M	M	M	M
Semester 2							
ENID 898 Dissertation (Writing up dissertation book, dissertation defense)	8 (0-24-0)	M	M	M	M	M	M

I = PLO is Introduced R = PLO is Reinforced

P = PLO is Practiced M = Level of Mastery is Assessed

A = PLOs are assessed

*The program may consider add “A” in the evaluation of I, R, and P

Note: For a study plan with only a thesis/thematic paper, research activities should be clearly specified for each semester. For other study plans, research activities may be identified

Appendix 5
Details of Program Instructors
Details of the program instructors in-charge and regular instructors

A. The Faculty in Charge of the Program

No. 1 Professor Dr. Benjaphorn Prapagdee

Research interests or expertise

1. Heavy metal microbial- and phyto-remediation
2. Biodegradation of bioplastics
3. Biocontrol of plant pathogens using microbial antagonists

Academic work

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 (Specify only 3-5 items)

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Boonsong P., Ussawarujikulchai A., **Prapagdee B.**, Pansak W. (2025). Contamination of microplastics in greenhouse soil subjected to plastic mulching. Environmental Technology and Innovation, 37, 103991. (Scopus)	12/1	2025
Published research work	Ketaubon P., Ritthikasem N., Tanheng P., **Prapagdee B.** (2024). Enhancing heavy metal phytoremediation in landfill soil by Chrysopogon zizanioides (L.) roberty through the application of bacterial-biochar pellets. Environmental	12/1	2024

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	Technology and Innovation, 35, 103738. (Scopus)		
Published research work	Ketaubon P., **Prapagdee B.** (2023). Enhancing cadmium phytoremediation of Chlorophytum comosum (Thunb.) Jacques by applying cadmium-resistant bacterial tablet. Environmental Science and Pollution Research, 30(52), 113015-113025. (Scopus)	12/1	2023
Published research work	Ruangpanupan N., Ussawarujikulchai A., **Prapagdee B.**, Chavanich S. (2023). Seasonal variation in the abundance of microplastics in three commercial bivalves from Bandon Bay, Gulf of Thailand. Marine Pollution Bulletin, 197, 1515600. (Scopus)	12/1	2023
Published research work	Thooppeng P., Junpradit C., Rongsayamanont W., Duangmal K., **Prapagdee B.** (2023). Cadmium-resistant Streptomyces stimulates phytoextraction potential of Crotalaria juncea L. in cadmium-polluted soil. International Journal of Phytoremediation, 25(10), 1318-1327. (Scopus)	12/1	2023

No. 2 Associate Professor Dr. Naphatsarnan Phasukarratchai

Research interests or expertise

1. Surfactant application in remediation
2. Effect of surfactant on fate and transport of emerging pollutants
3. Surfactant and valuable recovery from waste

Academic work

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 (Specify only 3-5 items)

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
Published research work (online)	**Phasukarratchai, N.**, Chaleampatthanapong, N., Wongkaew, P., Boonnontae, R., Wongpram, P., Bumrungwaen, T., Pansak, W., Rongsayamanont, W. (2025). Black soldier fly pupal exuviae as a biomaterial for cadmium adsorption: characterization, efficiency and pot experiment. Water, Air and Soil Pollution. 236 (15), 1-18. article no.1008. doi:10.1007/s11270-025-08656-x (Scopus)	12/1	2025
Published research work (online)	Rongsayamanont, W., **Phasukarratchai, N.** (2025). Ultrasound-assisted extraction of biosurfactants from water hyacinth for enhanced soil washing of diesel-contaminated soils: performance evaluation and phytotoxicity assessment. Environment Science and Pollution Research. 32 (36), 21522-21542. https://doi.org/10.1007/s11356-025-36930-2 (Scopus)	12/1	2025

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
Conference proceedings	กมลชนก สาลี, วันวิสาข์ ปั้นศักดิ์, เบญจภรณ์ ประภักดี, วิชญา รงค์สยามานนท์, **ณภัสนันท์ พสุการัชต์ชัย**. “ผลของการเติมปุ๋ยสังกะสีและเหล็กต่อผลผลิตและองค์ประกอบผลผลิตของข้าวโพดเลี้ยงสัตว์ และกิจกรรมของจุลินทรีย์ในดินเนื้อปูน,” Proceedings of การประชุมทางวิชาการระดับชาติ นเรศวรวิจัยและนวัตกรรม ครั้งที่ 21 Research & Innovation Synergy: Collaboration for a Sustainable Future, 17-18 กรกฎาคม 2568, ศูนย์แสดงนิทรรศการและการจัดประชุมสมเด็จพระนเรศวรมหาราช มหาวิทยาลัยนเรศวร พิษณุโลก, 194-203.	10/0.2	2025
	เขมพาสน์ จาดก้อน, วิชญา รงค์สยามานนท์, **ณภัสนันท์ พสุการัชต์ชัย**, อัจฉรา อัศวรุจิกุลชัย. “การสื่อสารเพื่อสร้างการตระหนักรู้และการเปลี่ยนแปลงพฤติกรรมของเยาวชนเกี่ยวกับการคัดแยกขยะประเภทหน้ากากอนามัย และอุปกรณ์ตรวจ ATK ในช่วงสถานการณ์ COVID-19: กรณีศึกษานักเรียนระดับชั้นมัธยมศึกษาปีที่ 4 โรงเรียนอัสสัมชัญธนบุรี,” Proceedings of งานประชุมวิชาการระดับชาติสวนดุสิต 2025 ครั้งที่ 7 วิทยาศาสตร์และเทคโนโลยีเพื่อความยั่งยืน, 27 มิถุนายน 2568, อาคารรักตะกนิษฐ มหาวิทยาลัยสวนดุสิต กรุงเทพมหานคร, 518-532.	10/0.2	2025

No. 3 Associate Professor Dr. Paramita Punwong

Research interests or expertise

1. Paleoecology
2. Archaeobotany
3. Plant Ecology
4. Climate change

Academic work

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 (Specify only 3-5 items)

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Jirapinyakul, A., Sukaudom, D., Charoenpong, C., Sompongchaikul, P., **Punwong, P.**, & Yamoah, K. A. (2025). Hydroclimate Variability in the Mainland Southeast Asia During the Last Glacial Maximum. Open Quaternary, 11(1). DOI: 10.5334/oq.154 (Scopus)	12/1	2025
Published research work	Englong, A., **Punwong, P**., Seelanan, T., Marchant, R., Wynne-Jones, S., Jirapinyakul, A., & Fleisher, J. (2024). Unveiling 4500 years of environmental dynamics and human activity at Songo Mnara, Tanzania. Quaternary Science Advances, 14, 100192. (Scopus)	12/1	2024
Published research work	Yasmeen, A., Pumijumnong, N., Arungrat, N., **Punwong, P.**, Sereenonchai, S. and Chareonwong, U. (2024). Nature-based solutions for coastal erosion protection in a changing climate: A cutting-edge	12/1	2024

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	analysis of contexts and prospects of the muddy coasts. Estuarine, Coastal and Shelf Science, 108632. (Scopus)		
Published research work	**Punwong, P.**, Englong, A., Marchant, R., Jirapinyakul, A., Suttiwong, A., Chirawatkul, P., Chotikarn, P., Pumijumnong, N., Yuttithum, M., Maprasop, P. and Promchoo, W. (2024). A multi-proxy reconstruction of the late Holocene vegetation dynamics in Krabi mangroves, Thailand Andaman Sea. Quaternary Science Advances, 13, 100133. (Scopus)	12/1	2024
Published research work	Yasmeen, A., Pumijumnong, N., Arunrat, N., **Punwong, P.**, Sereenonchai, S., & Chareonwong, U. (2024). Nature-based solution for coastal erosion protection in the muddy coasts: Empirical perceptibility from the Upper Gulf of Thailand. Ocean & Coastal Management, 259, 107488. (Scopus)	12/1	2024

No. 4 Assistant Professor Dr. Witchaya Rongsayamanont

Research interests or expertise

1. Bioremediation for petroleum contaminated soil
2. Green technology for marine oil spill remediation
3. Green product development for household cleaning and environmental remediation

Academic work

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 (Specify only 3-5 items)

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Phasukarratchai, N., Chaleampatthanapong, N., Wongkaew, P., Boonnontae, R., Wongpram, P., Bumrungwaen, T., Pansak, W., & **Rongsayamanont, W.** (2025). Black soldier fly pupal exuviae as a biomaterial for cadmium adsorption: Characterization, efficiency and pot experiment. Water, Air, & Soil Pollution, 236, 1008. https://doi.org/10.1007/s11270-025-08656-x (Scopus)	12/1	2025
Published research work	**Rongsayamanont, W.**, & Phasukarratchai, N. (2025). Ultrasound-assisted extraction of biosurfactants from water hyacinth for enhanced soil washing of diesel-contaminated soils: Performance evaluation and phytotoxicity assessment. Environmental Science and Pollution Research, 32, 21522–21542.	12/1	2025

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	https://doi.org/10.1007/s11356-025-36930-2 (Scopus)		
Published research work	Montreemuk, J., **Rongsayamanont, W.**, Ussawarujikulchai, A., Pansak, W., & Prapagdee, B. (2025). Evaluation of heavy metal contamination in landfills and role of multi-heavy metal-resistant rhizobacteria in heavy metal mobilization. International Journal of Environmental Science and Technology, 22, 15893–15908. https://doi.org/10.1007/s13762-025-06695-9	12/1	2025

B. Full time instructors of the curriculum

No. 1 Professor Dr. Duangrat Inthorn

Research interests or expertise

1. Bioremediation
2. Biological wastewater treatment
3. Environmental Toxicology

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work (online)	Sooksawat N, Adsatroo S, Bunmanat S, Chittwanij A, Vangnai A, Kongtip P, Wosie S and **Inthorn D**. Phytoremediation potential of Sunn Hemp for carbaryl-contaminated soil . 2024, ScienceAsia, 2024, 50(5), 089:1-7. (Scopus)	12/1	2024
Published research work (online)	Sooksawat N, Chittawanji A, Olanratmanee P, Insoongnern H, Wongsaeng P, Kumproa K, Chinaworn S, Ruanpan W, Ruanpan N, **Inthorn D**. and Vangnai A. Potential use of Sunn Hemp as green manure and of biostimulant for enhancement of animal feed corn crop and fertilized soil properties. International Journal of Agriculture and Biosciences 2024, 13(3): 419-428. (Scopus)	12/1	2024
Published research work (online)	Niampradit S, Kiangkoo N, Mingkhwan R, Kliengchuay W, Worakhunpiset S,	12/1	2024

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	Limpananont Y, Hongsibsong S, **Inthorn D** and Tantrakarnapa K. Occurrence, distribution, and ecological risk assessment of heavy metals in Chao Phraya river, Thailand. Scientific Report, 2024, 14:8366. (Scopus)		
Published research work (online)	Chusut, W., Kanchanasuta, S., and **Inthorn, D.** (2023). Optimization for biohydrogen purification process by chemical absorption techniques. Sustainable Environment Research, 2023, 33(1), 35. (Scopus)	12/1	2023

No. 2 Associate Professor Dr. Cheerawit Rattanapan

Research interests or expertise

1. Environmental Management
2. Sustainable Development
3. Environmental Health
4. Environmental Biotechnology

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Adhikari, S., Suksaroj, T., Laosee, O., **Rattanapan, C.**, & Janmaimool, P. (2025). Enhancing willingness and enrollment in the national health insurance program in Madhesh province, Nepal. International Journal of Health Governance, 30(1), 89-104. (Scopus)	12/1	2025
Published research work	Ounsaneha, W., Laosee, O., Janmaimool, P., Suksaroj, T. T., & **Rattanapan, C.** (2025). Effective COVID-19 preventive measures for Thai residents in environmental risk areas and significant determinants of self-preventive behaviors. Global Transitions, 7, 118-127. (Scopus)	12/1	2025
Published research work	Biró, K., Woon, K. S., Ounsaneha, W., & **Rattanapan, C.** (2025). A global perspective on sustainable pathways for biogas adoption. Global Journal of	12/1	2025

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	Environmental Science and Management, 11(2), 825-856. (Scopus)		
Published research work	Uemura, M., Laosee, O., **Rattanapan, C**., & Janmaimool, P. (2025). A causal relationship model of urban environmental factors affecting the subjective well-being of Japanese immigrant workers in Thailand. City and Environment Interactions, 28, 100218. (Scopus)	12/1	2025
Published research work	Thapa, S., Toyoda, Y., Laosee, O., Janmaimool, P., Buadit, T., Noisangiam, N., & **Rattanapan, C.** (2025). Factors associated with household flood preparedness in Songkhla old town Thailand. Progress in Disaster Science, 26, 100441. (Scopus)	12/1	2025

No. 3 Associate Professor Dr.Jaruwan Wongthanate

Research interests or expertise

1. Green Energy and Bioenergy Technology
2. Waste Reuse and Recycling
3. Wastewater Treatment Technology and Monitoring
4. Environmental Technology and Management

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Jantarat, C., Meenak, N., **Wongthanate, J.** (2025). Efficiency of Peanut Shells in Dye Adsorption from Wastewater in Community-Based Fabric Dyeing Processes. Science and Technology to Community, 3 (5), 24-38. (TCI 1)	13/0.8	2025
Conference proceedings	Srichan, N., Nakhapakorn, K., **Wongthanate, J.**, "Identify Factors that Influence Dengue Incidences along with BTS," Proceedings of the 9th Conference on Natural Resources, Geoinformation and Environment, 27-28 March 2025. Geographical Association of Thailand and Ramkhamhaeng University, 115-122.	10/0.2	2025
Conference proceedings	Mata, S., **Wongthanate, J**., Ussawarujikulchai, A., Peerakiatkhajohn, P., Iamchaturapatr, J., "Carbon Footprint Assessment of Rubber Smoked Sheet: A case study of cooperative rubber sheet factories in	10/0.2	2025

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	Thung Song District, Nakhon Si Thammarat Province", Proceedings of the 63rd Kasetsart University Annual Conference. 4-6 March 2025. Kasetsart University, 777-785.		
Conference proceedings	Santitranon, T., Ussawarujikulchai, A., **Wongthanate, J.**, Rongsayamanont, W., "A Design of Single-Use Plastic Water Bottles for Recycling", Proceedings of the National Conference on Science Technology and Innovation 2024 (NCSTI 2024). 5 March 2024. The Royal River Hotel, Bangkok, 2044-2050.	10/.02	2024
Conference proceedings	Natsungnoen, P., Ussawarujikulchai, A., Nakhapakorn, K., **Wongthanate, J**., "A study of Marine Debris and Macroplastics at Mae Rumphueng Beach, Rayong Province, Thailand", Proceedings of the 12th International Conference on Environmental Engineering, Science and Management and the 22nd National Environmental Conference. Environmental Engineering Association of Thailand, 17-18 May 2023. 1-8.	10/0.2	2023

No. 4 **Associate Professor Dr.Kampanad Bhaktikul**

Research interests or expertise

1. Modeling complex water resource systems
2. Emphasizing surface water management
3. Real-time water allocation
4. Environmental impact assessment
5. Integrated water resources management
6. Climate change adaptation

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	**Bhaktikul K.**, Phonphoton N. Development of an Integrated Sustainability Indicator for the Local People Surrounding a Reservoir Project. Sustainable Futures. 2024; Vol.7, P.100223. (Scopus)	12/1	2024
Published research work	Lopez, JCC., Thepanondh S., **Bhaktikul, K.** Sensory and organoleptic assessment from the byproducts of mamoncillo or quenepa Melicoccus bijugatus Jacq: Alternative food processing and morpho-physiological characterization of the fruit. Australian Journal of Crop Science. 2024, 18(9), 564-573. (Scopus)	12/1	2024
Published research work	Sitthisuntikul, K., Aroonsrimorakot, S., **Bhaktikul, K.**, Satienpeerakul, K., Rungreuangwong, W., Mensin, S., Jewaou, P., Outong, W., & Sathawong, S. Participatory Management	13/0.8	2023

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	for Sustainable Low-Carbon Community in Highland Community, Thailand. Interdisciplinary Research Review. 2023, 18(5), 9-15. (TCI)		

No. 5 **Associate Professor Dr. Kanchana Nakhapakorn**

Research interests or expertise

1. Geoinformation Technology for resources and environmental management
2. Climate change and human health impacts
3. Coastal vulnerable assessment
4. Remote Sensing and GIS Applications for environment monitoring and management
5. GIS and Health applications
6. Floods and Droughts risk assessment

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Wimala, S., Jirakajohnkool, S., Konisranukul, W., & **Nakhapakorn, K.** (2025). Comparison of Spatial Rainfall Interpolation by Using Statistical Methods at Thailand's Eastern Coast Basin. Suranaree Journal of Social Science, 19(1), e253620. (Scopus)	11/0.4	2025
Published research work	Daudé, E., Cebeillac, A., **Nakhapakorn, K.**, & Paul, R. (2024). Mapping Urban Landscapes Prone to Hosting Breeding Containers for Dengue-Vector Mosquitoes: A Case Study in Bangkok. Urban Science, 8(3), 98. https://doi.org/10.3390/urbansci8030098 (Scopus)	12/1	2024
Published research work	Cheewinsiriwat, P., Langkulsen, U., Lertwattanamongkol, V., Poompongthai, W., Lambonmung, A., Chamchan, C., Boonmanunt, S., **Nakhapakorn, K.**, &	12/1	2024

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	Moses, C. (2024). Assessing Coastal Vulnerability to Climate Change: A Case Study of Nakhon Si Thammarat and Krabi. Social Sciences, 13(3), 142. https://doi.org/10.3390/socsci13030142 (Scopus)		
Published research work	Sota, P., Upontain, S., Tangkawattana, S., Punyapornwithaya, V., **Nakhapakorn, K.**, Sripa. B. (2024). Association between Opisthorchis viverrini infection in cats and humans: Non-spatial and spatial analyses, Veterinary Parasitology, 327, 110150. ISSN 0304-4017. https://doi.org/10.1016/j.vetpar.2024.110150. (Scopus)	12/1	2024

No. 6 **Associate Professor Dr. Kritana Prueksakorn**

Research interests or expertise

1. Simulation of climate, weather and air quality (focusing on particulate matter and odor problems)

2. Life cycle sustainability assessment (focusing on carbon footprint, exergy analysis, and NEXUS)

3. Sustainable agrotourism

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Sattraburut, T., Yuttitham, M., Vongvassana, S., Pattanakiat, S., Chankhao, A., & **Prueksakorn K.** (2024). Rapid decline in soil organic carbon stocks following forest-to-maize field conversion within a watershed in Northern Thailand. Environmental Challenges, 17(101042), 1-14. (Scopus)	12/1	2024
Published research work	Sattraburut, T., **Prueksakorn, K.**, Kitcharoen, T., Amattayakul, T., Pinitsuwan, P., & Pratum, C. (2024). The connection between Phuket's water supply and the hotel sector's water use for assessment of tourism carrying capacity. Sustainability, 16(2), 1-23. (Scopus)	12/1	2024
Published research work	Vongruang, P., Suppoung, K., Kirtsaeng, S., **Prueksakorn, K.**, Thao, P. T. B., & Pimonsree, S. (2024). Development of	12/1	2024

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	meteorological criteria for classifying PM2.5 risk in a coastal industrial province in Thailand. Aerosol and air quality research, 24(10), 1-16. (Scopus)		

No. 7 **Associate Professor Dr. Noppol Arunrat**

Research interests or expertise

1. Fire effect on soils
2. Slash-and-burn agriculture / shifting cultivation / rotational shifting cultivation
3. Soil organic carbon sequestration
4. Climate change

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	**Arunrat N**, Mhuantong W, Sereenonchai S. Land-use legacies shape soil microbial communities and nutrient cycling functions in rotational shifting cultivation fields of Northern Thailand. Microbial Ecology 2025;88:102. (Scopus)	12/1	2025
Published research work	**Arunrat N**, Sereenonchai S, Uttarotai T. Effects of soil texture on microbial community composition and abundance under alternate wetting and drying in paddy soils of central Thailand. Scientific Reports 2025;15:24155. (Scopus)	12/1	2025
Published research work	**Arunrat N**, Uttarotai T, Mhuantong W, Kongsurakan, P, Sereenonchai S, Hatan, R. Soil bacterial communities in a 10-year fallow rotational shifting cultivation field and an 85-year-old terraced paddy field in Northern Thailand. Environmental Sciences Europe 2025;37:95. (Scopus)	12/1	2025

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Solomon LW, **Arunrat N**, Phutthai T, Wisawapipat W, Sereenonchai S, Hatano R. Carbon stock estimation and human disturbance in selected urban un-conserved forests in Entoto mountain forest, Addis Ababa, Ethiopia. Diversity 2025;17(4):225. (Scopus)	12/1	2025
Published research work	**Arunrat N**, Uttarotai T, Kongsurakan P, Sereenonchai S, Hatano R. Bacterial Community structure in soils with fire-deposited charcoal under rotational shifting cultivation of upland rice in Northern Thailand. Ecology and Evolution 2025;15: e70851. (Scopus)	12/1	2025

No. 8 Associate Professor Dr. Rattanawat Chaiyarat

Research interests or expertise

1. Wildlife Ecology & Management
2. Biodiversity Conservation & Management
3. Forest Ecology & Management
4. Restoration Ecology
5. Urban Ecology & Management

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Shen, X.Y., Rezaei, T., Kachenchart, B., Tanhan, P., **Chaiyarat, R.** (2024). Optimal region connection: Establishing effective ecological corridors for biodiversity conservation in Yunnan Province, China. Ecol. Indic., 169, 112918. (Scopus)	12/1	2024
Published research work	Rezaei, T., Shen, X., **Chaiyarat, R.**, Pumijumnong, N. (2024). Effective cooling networks: Optimizing corridors for Urban Heat Island mitigation. Effective cooling networks: Optimizing corridors for Urban Heat Island mitigation. Remote Sensing Applications: Society and Environment, 36, 101372. https://doi.org/10.1016/j.rsase.2024.101372. (Scopus)	12/1	2024
Published research work	**Chaiyarat, R.**, Thongkrathok, P., Maisuwan, W., Chantra, A., Jinda Chimplee b, Nawee	12/1	2024

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	Jieychien a, Songkrit Assawaklang c, Youngpoy, N. (2024). Variation in water utilization by mammal diversity in Khao Phaeng Ma Non-hunting area, Thailand. Heliyon, 10, e29786. https://doi.org/10.1016/j.heliyon.2024.e29786. (Scopus)		
Published research work	**Chaiyarat, R.**, Kanthachompoo, S., Thongtip, N., Yuttitham, M. (2024). Assessment of nutrients in natural saltlicks, artificial saltlicks, and general soils used by wild Asian elephants (Elephas maximus) in the Western Forests of Thailand. Resources 2024, 13. https://doi.org/10.3390/resources13010006. (Scopus)	12/1	2024
Published research work	Ronglarp, S., Phumpakphan, N., Deungkae, P., **Chaiyarat, R.**, Pla-aed, M., Khiowsree, N., Charaspet, K., Paansri, P., Noowong, J. (2024). Review: Status of wild elephant, conflict and conservation actions in Thailand. Biodiversitas, 25(4), 1479-1498. https://doi.org/10.13057/biodiv/d250416. (Scopus)	12/1	2024

No. 9 Associate Professor Dr. Sayam Aroonsrimorakot

Research interests or expertise

1. Environmental Management System, Green Office, Green Standard
2. Land Snails

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Laiphrakpam, M., **Aroonsrimorakot, S.**, Hambananda, A., Sornprasert, R., & Sarapirom, K. (2025). Role and status of Maechi and Maibi in the religion of Thai (Thailand) and Meitei (Manipur). Asia Social Issues, 19(1), e282616. https://doi.org/10.48048/asi.2026.282616	13/0.8	2026
Published research work	**Aroonsrimorakot, S.**, & Laiphrakpam, M. (2025). Indicator guidelines for the Green Office Standards (GOS) of Thailand. Kasetsart Journal of Social Sciences, 46(4), Article 460412. (Scopus)	12/1	2025
Published research work	**Aroonsrimorakot, S.** (2024). Factors influencing the success of ISO 14001 implementation in Honda automotive service center, Thailand. Interdisciplinary Research Review Journal, 19(5), 39–47. (TCI)	13/0.8	2024
Published research work	Khampa, N., Boontanon, S. K., **Aroonsrimorakot, S.**, & Boontanon, N. (2024). Combo chloro-photosynthetic device and applications for greenhouse gas reduction	12/1	2024

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	campaign and smart agriculture. Heliyon, 10(10), e31552. (Scopus)		

No. 10 **Associate Professor Dr. Sukanya Sereenonchai**

Research interests or expertise

1. Environmental health Communication
2. Pro-environmental behavior
3. Communication for social change
4. Environmental conflict management by peaceful means

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work (online)	**Sereenonchai, S.**, & Arunrat, N. (2025). A serious game to promote Water–Energy–Land–Food–People (WELFP) nexus perception and encourage pro-environmental and pro-social urban agriculture. Sustainability, 17(9), 4148. https://doi.org/10.3390/su17094148 (Scopus)	12/1	2025
Published research work (online)	**Sereenonchai, S.**, & Arunrat, N. (2024). Communication strategies for sustainable urban agriculture in Thailand. Sustainability, 16, 10898. https://doi.org/10.3390/su162410898 (Scopus)	12/1	2024
Published research work (online)	**Sereenonchai, S.**, & Arunrat, N. (2024). Pro-environmental agriculture to promote a sustainable lifestyle. Sustainability, 16, 7449. https://doi.org/10.3390/su16177449 (Scopus)	12/1	2024

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
Published research work (online)	Arunrat, N., Kongsurakan, P., & **Sereenonchai, S.** (2024). Heavy metal contamination and potential health risks in upland rice-producing soils of rotational shifting cultivation in northern Thailand. Environmental Sciences Europe, 36, 196. https://doi.org/10.1186/s12302-024-01023-3 (Scopus)	12/1	2024
Published research work (online)	**Sereenonchai, S.**, & Arunrat, N. (2023). Urban agriculture in Thailand: Adoption factors and communication guidelines to promote long-term practice. International Journal of Environmental Research and Public Health, 20(1), 1. https://doi.org/10.3390/ijerph20010001 (Scopus)	12/1	2023

No. 11 Associate Professor Dr. Sureewan Sittijunda

Research interests or expertise

1. Integrated Bioenergy Systems from Waste Biomass
2. Microbial Technology for Biofuel Production
3. Environmental Bioremediation and Value-Added Bioproducts

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Poosrisom, S., Wongfaed, N., Jumpa, T., Chiangjong, W., Xia, A., Reungsang, A., **Sittijunda, S.** (2025). The influence of mixture proportions of polypropylene, polyvinyl chloride, and polyester microplastics on methane production: Integrative analysis of microbial diversity, enzymatic and metabolic profiles. Process safety and Environmental Protection, 202, 107752. (https://doi.org/10.1016/j.psep.2025.107752) (Scopus)	12/1	2025
Published research work	Choonut, A., Wongfaed, N., Wongthong, L., Poolpol, A., Chaikitkaew, S., **Sittijunda, S**., Reungsang, A. (2025). Microbial degradation of polypropylene microplastics and concomitant polyhydroxybutyrate production: An integrated bioremediation approach with metagenomic insights. Journal of	12/1	2025

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	Hazardous Materials, 490, 137806. (https://doi.org/10.1016/j.jhazmat.2025.137806) (Scopus)		
Published research work	Sukphun, P., Wongfaed , N., Wongarmat, W., Kongjan, P., Chu, C.Y., **Sittijunda, S.**, Reungsang, A. (2025). Pilot-scale development of a semi-continuous system for biohythane production using hydrothermally pretreated mixed Napier grass and microalgae. International Journal of Hydrogen Energy, 127, 859–870. (https://doi.org/10.1016/j.ijhydene.2025.04.110) (Scopus)	12/1	2025
Published research work	Nualsri, C., Sreela-or, C., Tharangsri, P., Wongarmat, W., Reungsang. A., **Sittijunda, S**. (2025). Optimizing hydraulic retention time for methane production from the hydrogenic effluent left over from the co-digestion of vinasse and spent brewer's yeast cell. Carbon Resources Conversion, 8(4), 100328. (https://doi.org/10.1016/j.crcon.2025.100328) (Scopus)	12/1	2025
Published research work	Wongfaed, N., **Sittijunda, S.**, O-Thong, S., Kongjan, P., Jariyaboon, R., Plangklang, P., Reungsang, A. (2025). Enhancement of dark fermentative hydrogen production using metal-modified biochar from sugarcane residues: Optimization, characterization, and metabolic analysis.	12/1	2025

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	Journal of Environmental Management, 380, 125047. (https://doi.org/10.1016/j.jenvman.2025.125047) (Scopus)		

No. 12 Associate Professor Dr. Thamarat Phutthai

Research interests or expertise

1. Plant biodiversity (Bio-indicator species for better environment)
2. Biodiversity assessment
3. Plant ecology & biosystematics

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work (online)	Radbouchoom, S., Delos Angeles, M. D., Ngarega, B. K., **Phutthai, T.**, & Schneider, H. (2025). Forecasting habitat suitability of tropical karst plants in a warmer world: Thailand's Begonia diversity as a key example. Frontiers in Plant Science, 16, 1496040.https://doi.org/10.3389/fpls.2025.1496040 (Scopus)	12/1	2025
Published research work (online)	Sattraburut, T., Vongvassana, S., **Phutthai, T.**, & Thasod, Y. (2025). Reconstruction of forest change in highland Thailand: Evidence of anthropogenic disturbance, agriculture, and ecological restoration. Trees, Forests and People, 22, Article 101000. https://doi.org/10.1016/j.tfp.2025.101000 (Scopus)	12/1	2025
Published research work (online)	Radbouchoom, S., **Phutthai, T.**, & Schneider, H. (2023). Begonia fimbristipula subsp. siamensis (sect. Diploclinium,	12/1	2023

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	Begoniaceae), a new taxon of the megadiverse genus endemic to Thailand. Phytokeys, 218, 1–10. https://doi.org/10.3897/phytokeys.218.85699 (Scopus)		

No. 13 Assistant Professor Dr. Achara Ussawarujikulchai

Research interests or expertise

1. Plastic and Microplastic Pollution
2. Solid and Hazardous Waste Management
3. Construction and Demolition Waste Management

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Yonaha Y., Nakagawa K., Shimizu K., Yagi M., **Ussawarujikulchai A.**, Asakura H. (2025). Vibratory sorting for pumice removal in microplastic analysis of coastal sediment. Microplastics, 4, 30. (Scopus)	12/1	2025
Published research work	Islam M.A., Al Mamun S., Nakagawa K., Shimizu K., Yagi M., **Ussawarujikulchai A.**, Asakura H. (2025). Controlling small particles for two-step density sorting of simulated microplastics: Overcoming surface tension effects with surfactants. Environron. Nat. Res. J., 23(3), 279-288. (Scopus)	12/1	2025
Published research work	Boonsong P., **Ussawarujikulchai A.**, Prapagdee B., Pansak W. (2025). Contamination of microplastics in greenhouse soil subjected to plastic mulching. Environ. Technol. Innov., 37, 103991. (Scopus)	12/1	2025
Published research work	Ruangpanupan N., **Ussawarujikulchai A.**, Prapagdee B., Chavanich S. (2023).	12/1	2023

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	Seasonal variation in the abundance of microplastics in three commercial bivalves from Bandon Bay, Gulf of Thailand. Marine Pollut. Bull., 197, 115600. (Scopus)		
Published research work	Buadit T., **Ussawarujikulchai A.**, Suchiva K., Papong S., Ma H.W., Rattanapan C. (2023). Environmental impact of passenger car tire supply chain in Thailand using the life cycle assessment method. Sustain. Prod. Consump. 37, 156-68. (Scopus)	12/1	2023

No. 14 Assistant Professor Dr. Allan Sriratana Tabucanon

Research interests or expertise

1. Water management
2. Climate change impact
3. Sustainability

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Xue W, Aung APP, Guerrero-Cruz S, Xiao K, He Y, Anal KA, **Tabucanon AS**. An innovative application of osmotic microbial fuel cell (OsMFC) for enhanced activated sludge thickening and stabilization with bioelectricity generation, Water Research. 2025; 275: 123199. (Scopus) https://doi.org/10.1016/j.watres.2025.123199. (Scopus)	12/1	2025
Published research work	Xue W, Bhandari R, Tutor J, Siengpairou N, **Tabucanon AS**. Spatial and temporal variations of microplastics in the lower Chao Phraya River, Thailand: an investigation during the COVID-19 pandemic period. Environmental Science and Pollution Research. 2025; 32: 6970–6983. (Scopus) https://doi.org/10.1007/s11356-025-36161-5 (Scopus)	12/1	2025

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Phankamolsil Y, Rittima A, Sawangphol W, Kraisangka J, **Tabucanon AS**, Talaluxmana Y. Vudhivanich V. Deep reinforcement learning for multiple reservoir operation planning in the Chao Phraya River Basin. Modeling Earth Systems and Environment. 2025; 11(2): 102. (Scopus) https://doi.org/10.1007/s40808-024-02265-z (Scopus)	12/1	2025
Published research work	Xue W, **Tabucanon AS**, Amarakoon AMSN, Xiao K, Huang X. Recent advances in membrane and electrochemical hybrid technologies for emerging contaminants removal. Water Cycle. 2025; 6: 176-194. (Scopus) https://doi.org/10.1016/j.watcyc.2025.02.004 (Scopus)	12/1	2025
Published research work	Phankamolsil Y, Rittima A, Sawangphol W, Kraisangka J, **Tabucanon AS**, Talaluxmana Y, Vudhivanich V. Fuzzy rule–based control of multireservoir operation system for flood and drought mitigation in the Upper Mun River Basin. Modeling Earth Systems and Environment. 2024; 10: 5605–5619. (Scopus) https://doi.org/10.1007/s40808-024-02081-5 (Scopus)	12/1	2025

No. 15 Assistant Professor Dr. Chotika Muangsong

Research interests or expertise

1. Earth and Natural Sciences, Paleoclimatology
2. Dendroisotope chemistry, Water isotope chemistry, Stable isotope analysis
3. Cave and climate monitoring, Environmental Isotope, Geochemistry

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work (online)	Pumijumnong, N., Songtrirat, P., Panthi, S., Fan, Z.-X., Fu, P.-L., Koprowski, M., Buajan, S., Chatwatthana, R., Chareonwong, U., **Muangsong, C.**, & Cai, B. (2025). Differential climate sensitivity of cell anatomy and species-specific hydraulic safety of two Asian tropical pines in Northern Thailand. Global Ecology and Conservation, 59, e03548. https://doi.org/https://doi.org/10.1016/j.gecco.2025.e03548 (Scopus)	12/1	2025
Published research work (online)	Inthawong S, Pumijumnong N, **Muangsong C**, Buajan S, Cai B, Chatwatthana R, Chareonwong U, Phewphan U. (2024). Growth Response of Thai Pine (Pinus latteri) to Climate Drivers in Tak Province of Northwestern Thailand. Forests. 15(2):345. https://doi.org/10.3390/f15020345 (Scopus)	12/1	2024

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
Published research work (online)	**Muangsong, C.**, Phewphan, U., Kongsombat, P., Meengoen, N., Thongdeephan, T., Chanhom, D., Naipreedee, K., Khambai, N., Pontham, J., Pumijumnong, N. (2024). Estimation of aboveground carbon stock in service area of Ubon Ratchathani Zoo, Ubon Ratchathani province, Northeastern Thailand. International Journal of Agricultural Technology. 20(1): 197-212. ISSN 2630-0192. (Scopus)	12/1	2024
Published research work (online)	Preedanon, S., Suetrong, S., Srihom, C., Somrithipol. S., Kobmoo, N., Saengkaewsuk, S., Srikitikulchai, P., Klaysuban, A., Nuankaew, S., Chuaseeharonnachai, C., Chainuwong, B., **Muangsong, C.**, Zhang, ZF., Cai L, Boonyuen, N. (2023). Eight novel cave fungi in Thailand's Satun Geopark. Fungal Systematics and Evolution. 12: 1–30. doi: 10.3114/fuse.2023.12.01 (Scopus)	12/1	2023
Published research work (online)	Pumijumnong, N., **Muangsong, C.**, Panthi, S., Buajan, S., Cai, B., Kulsuwan, P., Kongsombat, P. (2023). A 225-year pine (Pinus latteri) tree-ring record of pre-monsoon relative humidity variation in Nan province of northern Thailand and the linkage with large-scale ocean-atmospheric circulations. Global and Planetary Change. 230, 104277. doi: 10.1016/j.gloplacha.2023.104277 (Scopus)	12/1	2023

No. 16 Assistant Professor Dr. Monthira Yuttitham

Research interests or expertise

1. Soil Science
2. Environmental Technology
3. Climate Change

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Thet Tin M., Chidthaisong A., Pumijumnong N., Arunrat N., and **Yuttitham M.**, Greenhouse Gas Mitigation Strategies for Lowland Rice Cultivation under Common Farm Practices, and Accompanying Influencing Factors for Acceptability among Local Farmers in Myanmar. Environment and Natural Resources Journal 2025: 23 (Scopus)	9/0.6	2025
Published research work	Sattraburut, T., **Yuttitham, M.**, Vongvassana, S., Pattanakiat, S., Chankhao, A., Prueksakorn, K. Rapid decline in soil organic carbon stocks following forest-to-maize field conversion within a watershed in Northern Thailand Environmental Challenges 2024, 17; 101042; https://doi.org/10.1016/j.envc.2024.101042 (Scopus)	12/1	2024

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Inpuron, T., Chaiyarat, R., Vardhanabindu, P. Suwansumrit, P. and **Yuttitham M.** (2024), Analysis of Land Use Changes with the Google Earth Engine (GEE) Platform: A Case Study in Saraburi Province. Suan Sunandha Science and Technology Journal,11, 106-112. doi: https://li02.tci-thaijo.org/index.php/ssstj (TCI)	9/0.6	2024
Published research work	Punwong P., Englong A., Marchant R., Jirapinyakul A., Suttiwong A., Chirawatkul P., Chotikarn P., Pumijumnong N., **Yuttithum M.**, Maprasop P., Promchoo W. (2024). A multi-proxy reconstruction of the late Holocene vegetation dynamics in Krabi mangroves, Thailand Andaman Sea. Quaternary Science Advances 13. 100133, doi: https://doi.org/10.1016/j.qsa.2023.100133. (Scopus)	12/1	2024
Published research work	Chaiyarat, R., Kanthachompoo, S., Thongtip, N., **Yuttitham M.** (2024). Assessment of Nutrients in Natural Saltlicks, Artificial Saltlicks, and General Soils Used by Wild Asian Elephants (Elephas maximus) in the Western Forests of Thailand. Resources, 13(1), 1-11, doi: 10.3390/resources13010006 (Scopus)	12/1	2024

No. 17 Assistant Professor Dr. Preeyaporn Koedrith

Research interests or expertise

1. Molecular & Cellular Toxicology
2. Molecular Biology & Biotechnology
3. Food Innovation & Future Food Development

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Sangkawanna, S., Aiemtanakul, S., Sangkawanna, S., Boonyuen, N., Chandrapatya, P., Promfai, I., **Koedrith, P.**, Hu, Y., & Wattanavichean, N. (2025). Valorization of sawdust and water hyacinth for mycelium-based Thai Krathongs with embedded seeding plants. Studies in Fungi, 10, e008. https://doi.org/10.48130/sif-0025-0008 (Scopus)	12/1	2025
Published research work	Benchaphong, A., Phanthuwongpakdee, J., Kwantong, P., Nuankaew, S., Chuaseeharonnachai, C., **Koedrith, P.**, Dueramae, S., Thongraksa, A., Somrithipol, S., Hu, Y., Wattanavichean, N., & Boonyuen, N. (2025). Assessing mycelium-based blocks utilizing Pleurotus ostreatus versus Trichoderma virens: material characterization and substrate ratios of bamboo residues,	12/1	2025

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	spent coffee grounds, and rice husks. Studies in Fungi, 10, e007. https://doi.org/10.48130/sif-0025-0007 (Scopus)		
Published research work	Wattanavichean, N., Phanthuwongpakdee, J., **Koedrith, P.****, Laoratanakul, P., Thaithatgoon, B., Somrithipol, S., Kwantong, P., Nuankaew, S., Pinruan, U., Chuaseeharonnachai, C., & Boonyuen, N.** (2025). Mycelium-Based Breakthroughs: Exploring Commercialization, Research, and Next-Gen Possibilities. Circular Economy and Sustainability. https://doi.org/10.1007/s43615-025-00539-x (Scopus)	12/1	2025
Published research work	Maliyam, P., Laphookhieo, S., **Koedrith, P.**, & Puttarak, P. (2024). Antioxidative and anti-cytogenotoxic potential of Lysiphyllum strychnifolium (Craib) A. Schmitz extracts against cadmium-induced toxicity in human embryonic kidney (HEK293) and dermal fibroblast (HDF) cells. Heliyon, 10(14), e34480. https://doi.org/10.1016/j.heliyon.2024.e34480 (Scopus)	12/1	2024
Published research work	Seang-On, L., Meeinkuirt, W., & **Koedrith, P.** (2023). Alleviation of cadmium toxicity in Thai rice cultivar (PSL2) using biofertilizer containing indigenous cadmium-resistant microbial consortia. Plants (Basel), 12(20),	12/1	2023

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	3651. https://doi.org/10.3390/plants12203651 (Scopus)		

No. 18 Assistant Professor Dr. Suparee Wisawapipat Boonmanunt

Research interests or expertise

1. Behavioral Economics
2. Experimental Economics
3. Health Economics

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work (online)	**Boonmanunt, S. W.**, Jantorn, W., Khruapradit, V., & Kilenthong, W. T. (2025). Intergenerational transmission of time preferences: Evidence from rural Thailand. Labour Economics, 102781. doi: 10.1016/j.labeco.2025.102781 (Scopus)	12/1	2025
Published research work (online)	**Boonmanunt, S. W.**, Pattanaprateep, O., Nimitphong, H., Suthutvoravut, U., Looareesuwan, P., Kitiyakara, T., Ongphiphadhanakul, B., McKay, G., Attia, J., & Thakkinstian, A. (2025). How time and risk preferences affect glucose control in type 2 diabetes patients. Scientific Reports, 15(1), 30740. doi: 10.1038/s41598-025-16791-y (Scopus)	12/1	2025
Published research work (online)	Suthutvoravut, U., Anothaisintawee, T., **Boonmanunt, S.**, Pramyothin, S., Siriyothin, S., Attia, J., McKay, G. J., Reutrakul, S., & Thakkinstian, A. (2023). Efficacy of Time-Restricted Eating and	12/1	2025

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	Behavioral Economic Intervention in Reducing Fasting Plasma Glucose, HbA1c, and Cardiometabolic Risk Factors in Patients with Impaired Fasting Glucose: A Randomized Controlled Trial. Nutrients, 15(19), 4233. doi: 10.3390/nu15194233 (Scopus)		
Published research work	**Boonmanunt, S.**, & Meier, S. (2023). The effect of financial constraints on in-group bias: Evidence from rice farmers in Thailand. Journal of Economic Behavior & Organization, 207, 96-109. (Scopus)	12/1	2023
Published research work (online)	**Boonmanunt, S.**, Pattanaprateep, O., Ongphiphadhanakul, B., McKay, G., Attia, J., Vlaev, I., & Thakkinstian, A. (2023). Evaluation of the Effectiveness of Behavioral Economic Incentive Programs for Goal Achievement on Healthy Diet, Weight Control and Physical Activity: A Systematic Review and Network Meta-analysis. Annals of Behavioral Medicine, 57(4), 277-287. doi: 10.1093/abm/kaac066 (Scopus)	12/1	2023

No. 19 Assistant Professor Dr. Thunyapat Sattraburut

Research interests or expertise

1. Geology
2. Palynology
3. Sedimentology

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	**Sattraburut, T.**, Vongvassana, S., Phutthai, T., & Thasod, Y. (2025). Reconstruction of forest change in highland Thailand: Evidence of anthropogenic disturbance, agriculture, and ecological restoration. Tree, Forests and People 22, 101000. (Scopus)	12/1	2025
Published research work	**Sattraburut, T.**, Yuttitham, M., Vongvassana, S., Pattanakiat, S., Chankhao, A., & Prueksakorn, K. (2024). Rapid Decline in Soil Organic Carbon Stocks Following Forest-to-Maize Field Conversion Within a Watershed in Northern Thailand. Environmental Challenges 17, 101042. (Scopus)	12/1	2024
Published research work	**Sattraburut, T.**, Vongvassana, S., Phutthai, T., & Thasod, Y. (2024). Palynological approaches to forest restoration in Southeast Asia: Challenges and opportunities for Thailand—A systematic	12/1	2024

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	review. Tree, Forests and People 18, 100714. (Scopus)		
Published research work	**Sattraburut, T.** (2024). Quantitative assessment of Permian limestone geosites in the Sai Yok District, Kanchanaburi Province, Western Thailand. Vietnam Journal of Earth Sciences 46(1), 120-146. (Scopus)	12/1	2024
Published research work	**Sattraburut, T**., Prueksakorn, K., Kitcharoen, T., Amattayakul, T., Pinitsuwan, P., & Pratum, C. (2024). The Connection between Phuket's Water Supply and the Hotel Sector's Water Use for Assessment of Tourism Carrying Capacity. Sustainability 16(2), 621. 21. (Scopus)	12/1	2024

No. 20 Assistant Professor Dr. Wanwisa Pansak

Research interests or expertise

1. Soil management
2. Soil erosion assessment and soil and water conservation systems
3. The relationship between soil, water and plant

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work (online)	Boonsong, P., Ussawarujikulchai, A., Prapagdee, B., & **Pansak, W.** (2025). Contamination of microplastics in greenhouse soil subjected to plastic mulching. Environmental Technology & Innovation, (37), 103991. https://doi.org/10.1016/j.eti.2024.103991 (Scopus)	12/1	2025
Published research work (online)	**Pansak, W**., Janeau, J., Intanon, S, Rodprai, C., Anusorn, K., Hammecker, C., Rumeau, D., & Grellier, S. (2025). Spatial variations in runoff, sediment, and nutrient losses induced by toposequence and biochar application in upland maize farming. International Soil and Water Conservation Research. https://doi.org/10.1016/j.iswcr.2025.07.007. (Scopus)	12/1	2025
Published research work (online)	Kullachonphuri, S., Soilueang, P., Ninlaphong, P., Nakdee, M., Jaikarsan, K., Chromkaew, Y.,	12/1	2025

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	Iamsaard, K., Hemrattrakun, P., Yosen, T., **Pansak, W.**, &bKhongdee, N. (2025). Mitigating drought stress in Coffea arabica L. seedlings through soil stabilization with corncob derived biochar. Journal of Agriculture and Food Research, 21, 101965. https://doi.org/10.1016/j.jafr.2025.101965 (Scopus)		
Published research work (online)	Montreemuk, J., Rongsayamanont, W., Ussawarujikulchai, A., **Pansak, W.**, & Prapagdee, B. (2025). Evaluation of heavy metal contamination in landfills and role of multi-heavy metal-resistant rhizobacteria in heavy metal mobilization. International Journal of Environmental Science and Technology, 22(15), 15893–15908. https://doi.org/10.1007/s13762-025-06695-9. (Scopus)	12/1	2025

No. 21 Dr. Abhisit Bhatsada

Research interests or expertise

1. Municipal Solid waste management
2. Biodrying, Composting and waste-to-solid fuel
3. Carbon footprint

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work (article)	**Bhatsada, A.**, Patumsawad, S., Towprayoon, S., Chiemchaisri, C., & Wangyao, K. (2025). Development of multivariable model for predicting heating value of bio-dried refuse-derived fuel from municipal solid waste. Biomass and Bioenergy, 197, 107795. (Scopus)	12/1	2025
Published research work (article)	**Bhatsada, A.**, Towprayoon, S., Chiemchaisri, C., Itsarathorn, T., & Wangyao, K. (2025). Predictive modeling and advanced statistical approaches for enhancing biodrying efficiency in wet refuse-derived fuel. Results in Engineering, 25, 103682. (Scopus)	12/1	2025
Published research work (article)	**Bhatsada, A.**, Payomthip, P., Itsarathorn, T., Lwin, Y. N. N., Wahyanti, E., Towprayoon, S., ... & Wangyao, K. (2025). AI-Powered Machine Learning Models for Monitoring and Optimization of Biodrying Process. Results in Engineering, 105584. (Scopus)	12/1	2025

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
Published research work (article)	Chungam, B., Vinitnantharat, S., Chiemchaisri, C., Towprayoon, S., Ishimori, H., **Bhatsada, A.**, & Wangyao, K. (2025). Application of electrical resistivity for real-time monitoring of municipal solid waste biodrying under different ventilation modes. Bioresource Technology Reports, 102413. (Scopus)	12/1	2025
Published research work (article)	Lwin, Y. N. N., **Bhatsada, A.**, Towprayoon, S., Patumsawad, S., Sutthasil, N., & Wangyao, K. (2024). Aeration Optimization for the Biodrying of Market Waste Using Negative Ventilation: A Lysimeter Study. Clean Technologies, 6(4), 1519-1536. (Scopus)	12/1	2024

No. 22 Dr. Boonlue Kachenchart

Research interests or expertise

1. Biological Sciences; Ecology
2. Climate Change and Greenhouse gas management
3. Geoinformatics

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Krainara, S., Chavananikul, C., Mistry, A. N., Assavalapsakul, W., Jitpraphai, S. M., **Kachenchart, B.**, ... & Pinyakong, O. (2025). Development of defined bacterial consortium as a bioaugmentation product for degrading mixed plastic wastes and plasticizers in simulated landfill. Journal of Environmental Management, 393, 126883. (Scopus)	12/1.0	2025
Published research work	Shen, X., Rezaei, T., **Kachenchart, B.**, Tanhan, P., & Chaiyarat, R. (2024). Optimal region connection: Establishing effective ecological corridors for biodiversity conservation in Yunnan Province, China. Ecological Indicators, 169, 112918. (Scopus)	12/1.0	2024
Published research work	**Kachenchart, B.**, & Panprayun, G. (2024). Selection of tropical plants for an extensive green roof with abilities of thermal performance, energy	12/1.0	2024

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	conservation, and greenhouse gas mitigation. Building and Environment, 112029. (Scopus)		
Published research work	Krainara, S., Mistry, A. N., Malee, C., Chavananikul, C., Pinyakong, O., Assavalapsakul, W., . **Kachenchart, B.** & Luepromchai, E. (2023). Development of a plastic waste treatment process by combining deep eutectic solvent (DES) pretreatment and bioaugmentation with a plastic-degrading bacterial consortium. Journal of Hazardous Materials, 132507. (Scopus)	12/1.0	2023

No. 23 Dr. Jakkapon Phanthuwongpakdee

Research interests or expertise

1. Waste Utilization
2. Biomaterials
3. Bioenergy
4. Adsorption
5. Computational Chemistry

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Sudrajat, H., **Phanthuwongpakdee, J.**, & Colmenares, J. C. (2025). Simple defect engineering of carbon nitride using mixed precursors for enhanced photocatalysis. Chemical Communications, 61, 7664–7667. (DOI: 10.1039/D5CC01401H)	12/1	2025
Published research work	Wattanavichean, N., **Phanthuwongpakdee, J.**, Koedrith, P., Laoratanakul, P., Thaithatgoon, B., Somrithipol, S., Kwantong, P., Nuankaew, S., Pinruan, U., Chuaseeharonnachai, C., & Boonyuen, N. (2025). Mycelium-based breakthroughs: Exploring commercialization, research, and next-gen possibilities. Circular Economy and Sustainability, 5, 3211–3253. (DOI: 10.1007/s43615-025-00539-x)	12/1	2024
Published research work	Nakason, K., **Phanthuwongpakdee, J.**, Youngjan, S., Kraithong, W., Phanthasri, J., Toomsan,	12/1	2024

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	W., Kuboon, S., Faungnawakij, K., Panyapinyopol, B., & Khemthong, P. (2024). Unraveling catalytic conversion of spent coffee grounds through alkaline and alkaline earth metal phosphates in hydrothermal carbonization. Fuel, 372, 132233 (DOI: 10.1016/j.fuel.2024.132233		

No. 24 Dr. Jittakon Ramanpong

Research interests or expertise

1. Outdoor recreation and nature tourism
2. Nature and health
3. Therapeutic landscape

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	**Ramanpong, J.**, Tsao, C., Yin, J., Wu, C.-D., Huang, Y.-C., & Yu, C.-P. (2025). Effects of forest bathing and the influence of exposure levels on cognitive health in the elderly: Evidence from a suburban forest recreation area. Urban Forestry & Urban Greening, 104, 128667.	12/1	2025
Published research work	**Ramanpong, J.**, Yin, J., Zhang, C.-J., Chen, H.-T., Tsai, M.-J., Spengler, J. D., & Yu, C.-P. (2024). The effects of viewing forests with different planting densities on physiological and psychological responses: A between-subject experiment. Trees, Forests and People, 16, 100551	12/1	2024
Published research work	Yin, J., **Ramanpong, J.**, Chang, J., Wu, C.-D., Chao, P.-H., & Yu, C.-P. (2023). Effects of blue space exposure in urban and natural environments on psychological and physiological responses: A within-subject	12/1	2023

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	experiment. *Urban Forestry & Urban Greening*, *87*, 128066.		

No. 25 Dr. Narin Boontanon

Research interests or expertise

1. Environmental Innovation
2. Emerging Pollutants in Environment
3. Biogeochemistry

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	Khampa N, Boontanon SK, Aroonsrimorakot S, **Boontanon N.** Combo chloro-photosynthetic device and applications for greenhouse gas reduction campaign and smart agriculture. Heliyon 2024;10:e31552. (Scopus)	12/1	2024
Published research work	Boonchata P, **Boontanon N**, Jindal V, Aung HKZZ, Visvanathan C, Fujii S, Boontanon SK. Photocatalytic degradation of perfluorooctane sulfonic acid and perfluorooctanoic acid using titanium dioxide/graphene oxide nanocomposite immobilized on polyvinyl alcohol film. Case Studies in Chemical and Environmental Engineering 2024;10:100862. (Scopus)	12/1	2024
Published research work	Kustiawan H, Boontanon SK, **Boontanon N**. Utilization of sanitaryware waste product (SWP) as an admixture ingredient for eco-	12/1	2024

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
	cooling paint. Waste Management 2024; 190:1-11. (Scopus)		

No. 26 Dr. Tatiya Siripongpreda

Research interests or expertise

1. Sensors and biosensor for healthcare, food, and environment
2. Nanocomposites
3. Polymer and polymeric composites

Academic work

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 of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	**Siripongpreda, T**., Noikorn, N., Phookum, T., Suea-Ngam, A., Brack, E., Ummartyotin, S. & Rodthongkum, N. (2025). Cellulose nanofibrils and semi-interpenetrating recycled cellulose/carboxymethyl cellulose hydrogel integrated with 3D-printed device as a multiplex sensing of pesticides and pH of water. International Journal of Biological Macromolecules. https://doi.org/10.1016/j.ijbiomac.2025.146210 (Scopus)	12/1	2025
Published research work	Phookum, T., Boobphahom. S., **Siripongpreda, T.**, Ummartyotin, S. & Rodthongkum, N. (2024). Recycled cellulose/PVA/CMC-GO/NQS hydrogel as a noninvasive sarcosine sensor for prostate cancer screening.Cellulose. https://doi.org/10.1007/s10570-024-06093-3 (Scopus)	12/1	2024

Types of Academic Work	Title of Academic works	Standard Criteria and Weights	Year of Publication
Published research work	**Siripongpreda, T.**, Jiraborvornpongsa, N., Composto, R. J., & Rodthongkum, N. (2024). Titanium dioxide/nitrogen-doped graphene-biopolymer based nanocomposite films for pollutant photodegradation and laser desorption ionization mass spectrometry of biomarkers. Nano-Structures & Nano-Objects, 38, 101203. https://doi.org/10.1016/j.nanoso.2024.101203 (Scopus)	12/1	2024
Published research work	Punnoy, P., Siripongpreda, T., Henry, C. S., Rodthongkum, N., & Potiyaraj, P. (2024). Novel theranostic wound dressing based on pH-responsive alginate hydrogel/graphene oxide/levofloxacin modified silk. International Journal of Pharmaceutics, 661, 124406. https://doi.org/10.1016/j.ijpharm.2024.124406 (Scopus)	12/1	2024
Published research work	Saedan, A., Siripongpreda, T., Rodthongkum, N., & Ummartyotin, S. (2024). Recycled newspaper cellulose-based colorimetric sensor of biogenic amines for food spoilage indication. Carbohydrate Polymer Technologies and Applications, 8, 100546. https://doi.org/10.1016/j.carpta.2024.100546 (Scopus)	12/1	2024

Weighted score of Academic Works

No.	Criteria for Academic Works	Weighted Score
1	Creative Works published at the international cooperation level	0.8
2	Nationally published creative works	0.6
3	Internationally published creative works	1
4	Creative works published at the ASEAN regional level	1
5	Creative works published at the institutional level	0.4
6	Creative works released to the public in any manner, or through online electronic media	0.2
7	Textbooks or books that have been assessed through the criteria for application for academic positions	1
8	Textbooks or books that have been considered according to the criteria for assessment of academic positions but have not been used to apply for academic positions	1
9	Research articles or academic articles published in academic journals available in Database group II	0.6
10	Complete research or academic articles published in the report as a result of a national conference	0.2
11	Complete research or academic articles published in the report as a result of an international conference, or in national academic journals available in the databases according to the Announcement or Regulation of Higher Education Commission on the Criteria for Consideration of Academic Journals for Dissemination of Academic works B.E. 2556 (2013)	0.4
12	Research or academic articles published in international journals available in the databases according to the Announcement or Regulation of Higher Education Commission on Criteria for Consideration of Academic Journals for Dissemination of Academic Works B.E. 2556 (2013)	1
13	Research or academic articles published in international journals that are available in the databases according to the Announcement or Regulation of Higher Education Commission on the Criteria for Consideration of Academic Journals for dissemination of Academic Works, B.E. 2556 (2013); however, the institution proposes these articles to the institution council for approval then prepares an announcement for general acknowledgement and notifies Higher Education Commission or Commission for Civil Service in Higher Education Institutions for acknowledgement within 30 days from the announcement date; these articles are neither available in Beall's list nor published in academic journals which are found in TCI Databases Group I.	0.8
14	Experience from an establishment (workplace)	1
15	Discovery of new plant or animal species that have been registered	1

No.	Criteria for Academic Works	Weighted Score
16	Patented works	1
17	Research works granted a petty patent	0.4
18	Research works from a project hired by a national agency or organization	1
19	Academic works contributing to society that have been assessed through the criteria for applying for academic positions	1

Appendix 6
Course Description

Course Description

Dissertation

		Credits (lecture – practice – self-study)
ENID 898	**Dissertation**	**48 (0-144-0)**
สวคร ๘๙๘	**วิทยานิพนธ์**	

Research design; proposal presentation; research ethics; data and information classification; data analysis; research result synthesis and discussion; compilation of research result and dissertation writing; dissertation presentation, research dissemination; research paper publication and presentation; research dissemination ethics.

การออกแบบการวิจัย การเสนอโครงร่าง จริยธรรมการวิจัย การจำแนกข้อมูลและข่าวสาร การวิเคราะห์ข้อมูล การสังเคราะห์และการอภิปรายผลการวิจัย การรวบรวมผลการวิจัยและการเขียนวิทยานิพนธ์ การนำเสนอวิทยานิพนธ์ การเผยแพร่ผลงานวิจัย การตีพิมพ์และนำเสนอผลงานวิจัย จริยธรรมในการเผยแพร่ผลงานวิจัย

Appendix 7

Essence of Program Revision

B.E. 2570

Program Revision of Doctor of Philosophy Program
Field of study In Environment and Resource Studies B.E. 2570
Edition / Academic Year.....
Faculty of Environment and Resource Studies
and Faculty of Graduate Studies, Mahidol University
Mahidol University

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1. This program was approved by the Permanent Secretary, Ministry of Higher Education, Science and Innovation on ..... (date/month/year)
2. The University Council (specify institution) approved this revision at the meeting on ..... (date/month/year)
3. This revised program is available to the students of academic year ..... from the ..... semester of academic year 2570 onwards.
4. Reasons for Revision
   4.1 The curriculum is revised to be in accordance with Thai Qualification Framework for Higher Education B.E. 2565 and based on criteria on Graduate Studies B.E. 2565 (set by Ministry of Higher Education, Science, Research and Innovation)
   4.2 The curriculum is revised to update the courses more modern.
5. Essence of Revision
   5.1 Revision of program learning outcomes
   5.2 Revision of evaluation strategies
   5.3 Revision of the Faculty in Charge of the Program
   5.4 Revision of Admission Requirements

Comparison table of The Faculty in Charge of the Program and Full time instructors of the curriculum for the the Current Program and Revising Program

Name – Surname		Current Program 2022		Revising Program 2027	
		Program in Charge	Full time instructors	Program in Charge	Full time instructors
1	Professor Dr.Benjaphorn Prapagdee	/	-	/	/
2	Professor Dr.Duangrat Inthorn	-	-	-	/
3	Professor Dr.Nathsuda Pumijumnong	/	-	-	-
4	Professor Dr.Suvaluck Satumanatpan	-	/	-	-
5	Associate Professor Dr.Cheerawit Rattanapan	-	/	-	/

Name – Surname		Current Program 2022		Revising Program 2027	
		Program in Charge	Full time instructors	Program in Charge	Full time instructors
6	Associate Professor Dr.Chumlong Arunlertaree	-	/	-	-
7	Associate Professor Dr.Jaruwan Wongthanate	-	/	-	/
8	Associate Professor Dr.Kampanad Bhaktikul	-	/	-	/
9	Associate Professor Dr.Kanchana Nakhapakorn	-	/	-	/
10	Associate Professor Dr.Kritana Prueksakorn	-	/	-	/
11	Associate Professor Dr.Naphatsarnan Phasukarratchai	-	/	/	/
12	Associate Professor Dr.Noppol Arunrat	-	/	-	/
13	Associate Professor Dr.Nuanchan Singkran	/	-	-	-
14	Associate Professor Dr.Paramita Punwong	/	-	/	/
15	Associate Professor Dr.Patranit Srijuntrapun	-	/	-	-
16	Associate Professor Prapeut Kerdsueb	-	/	-	-
17	Associate Professor Dr.Rattanawat Chaiyarat	-	/	-	/
18	Associate Professor Dr.Sayam Aroonsrimorakot	-	/	-	/
19	Associate Professor Dr.Sukanya Sereenonchai	-	/	-	/
20	Associate Professor Dr.Sura Pattanakiat	-	/	-	-
21	Associate Professor Dr.Sureewan Sittijunda	-	/	-	/
22	Associate Professor Dr.Suwalee Worakhunpiset	-	/	-	-
23	Associate Professor Dr.Thamarat Phutthai	-	/	-	/
24	Associate Professor Dr.Wimon Sonchaem	-	/	-	-
25	Assistant Professor Dr.Achara Ussawarujikulchai	-	/	-	/
26	Assistant Professor Dr.Allan S Tabucanon	-	/	-	/
27	Assistant Professor Dr.Chotika Muangsong	-	/	-	/
28	Assistant Professor Dr.Gunn Panprayun	-	/	-	-
29	Assistant Professor Dr.Jiratata Roemmontri	-	/	-	-
30	Assistant Professor Dr.Jongdee To-im	-	/	-	-
31	Assistant Professor Dr.Kamalaporn Kanongdate	-	/	-	-
32	Assistant Professor Dr.Kobkaew Manomaipiboon	-	/	-	-
33	Assistant Professor Dr.Kulvadee Kansuntisukmongkol	-	/	-	-
34	Assistant Professor Dr.Monthira Yuttiham	-	/	-	/
35	Assistant Professor Dr.Navaporn Karnjanasiranon	-	/	-	-
36	Assistant Professor Dr.Piangjai Peerakiatkhajohn	-	/	-	-
37	Assistant Professor Dr.Piyakarn Teartisup	-	/	-	-
38	Assistant Professor Dr.Preeyaporn Koedrith	-	/	-	/
39	Assistant Professor Dr.Saranya Sucharitkul	-	/	-	-

Name – Surname		Current Program 2022		Revising Program 2027	
		Program in Charge	Full time instructors	Program in Charge	Full time instructors
40	Assistant Professor Dr.Suparee W. Boonmanunt	-	/	-	/
41	Assistant Professor Dr.Thunyapat Sattraburut	-	/	-	/
42	Assistant Professor Dr.Wanwisa Pansak	-	/	-	/
43	Assistant Professor Dr.Witchaya Rongsayamanont	-	/	/	/
44	Lecturer Dr.Abhisit Bhatsada	-	-	-	/
45	Lecturer Dr.Boonlue Kachenchart	-	/	-	/
46	Lecturer Dr.Jakkapon_Phanthuwongpakdee	-	-	-	/
47	Lecturer Dr.Jittakon Ramanpong	-	-	-	/
48	Lecturer Dr.Narin Boontanon	-	/	-	/
49	Lecturer Dr. Phatra Samerwong	/	-	-	-
50	Lecturer Dr.Pisut Nakmuenwai	-	/	-	-
51	Lecturer Dr.Rattana Boonprasert	-	/	-	-
52	Lecturer Dr.Tatiya Siripongpreda	-	-	/	/

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

Courses of the Current Program	Courses of the Revising Program	Remark
ENID 898 Dissertation	ENID 898 Dissertation	
Research design; proposal presentation; research ethics; data and information classification; data analysis; research result synthesis and discussion; compilation of research result and dissertation writing; dissertation presentation, research dissemination; research paper publication and presentation; research dissemination ethics. การออกแบบการวิจัย การเสนอโครงร่าง จริยธรรมการวิจัย การจำแนกข้อมูลและข่าวสาร การวิเคราะห์ข้อมูล การสังเคราะห์และการอภิปรายผลการวิจัย การรวบรวมผลการวิจัยและการเขียนวิทยานิพนธ์ การนำเสนอวิทยานิพนธ์ การเผยแพร่ผลงานวิจัย การตีพิมพ์และนำเสนอผลงานวิจัย จริยธรรมในการเผยแพร่ผลงานวิจัย	Research design; proposal presentation; research ethics; data and information classification; data analysis; research result synthesis and discussion; compilation of research result and dissertation writing; dissertation presentation, research dissemination; research paper publication and presentation; research dissemination ethics. การออกแบบการวิจัย การเสนอโครงร่าง จริยธรรมการวิจัย การจำแนกข้อมูลและข่าวสาร การวิเคราะห์ข้อมูล การสังเคราะห์และการอภิปรายผลการวิจัย การรวบรวมผลการวิจัยและการเขียนวิทยานิพนธ์ การนำเสนอวิทยานิพนธ์ การเผยแพร่ผลงานวิจัย การตีพิมพ์และนำเสนอผลงานวิจัย จริยธรรมในการเผยแพร่ผลงานวิจัย	

6. Program Structure after Revision

The Comparison Table of the Curriculum Structure between the Current Program and Revised Program Based on Criteria on Graduate Studies B.E. 2565

Course Category	Criteria on Doctoral Degree	Curriculum Structure of the Current Program	Curriculum Structure of the Revised Program
Dissertation	48	48	48
Total credits (not less than)	48	48	48

Appendix 8

MU. 7 Report on the Operation Results of Program

Doctor of Philosophy in Environment and Resource Studies (International Program)

Academic Year 2024

MU.7

Report on the Operation Results of Program

Doctor of Philosophy in Environment and Resource Studies (International Program)

Academic Year 2023

Date of Report November 18, 2024

Section 1 Information of the Program Instructors

1.1 Instructors responsible for the program who are qualified according to the Office of the Ministry of Higher Education, Science, Research and Innovation's standard.

Name - Surname	Degree/Institute/Graduation Year	Academic Works
Professor Dr. Benjaphorn Prapagdee	D.Tech.Sc. (Environmental Toxicology, Technology and Management) Asian Institute of Technology : 2004 M.Sc. (Industrial Microbiology) Chulalongkorn University : 1995 B.Sc. (Microbiology) Burapha University : 1992	- Montreemuk J, Stewart TN, **Prapagdee B.** 2024. Bacterial-assisted phytoremediation of heavy metals: Concepts, current knowledge, and future directions. Environmental Technology and Innovation. 33. - Ruangpanupan N, Ussawarujikulchai A, **Prapagdee B**, Chavanich S. 2024. Seasonal variation in the abundance of microplastics in three commercial bivalves from Bandon Bay, Gulf of Thailand. Marine Pollution Bulletin. 197. - Ketaubon P, **Prapagdee B.** 2023. Enhancing cadmium phytoremediation of Chlorophytum comosum (Thunb.) Jacques by applying cadmium-resistant bacterial tablet. Environmental Science and Pollution Research. 30. - Sangsuwan P, **Prapagdee B.** 2021. Co-fermentation of 1,3-propanediol and 2,3-butanediol from crude glycerol derived from the biodiesel production process by newly isolated Enterobacter sp.: Optimization factors affecting. Environmental Technology & Innovation. 21.

Name - Surname	Degree/Institute/Graduation Year	Academic Works
		- Khanthom S, Stewart TN, **Prapagdee B.** 2021. Potential of a rhizobacterium on removal of heavy metals from aqueous solution and promoting plant root elongation under heavy metal toxic conditions. Environmental Technology & Innovation. 22. - Tangudom P, Martin-Fabiani I, **Prapagdee B**, Wimolmala E, Markpin T, Sombatsompop N. 2021. Improvement of mechanical-antibacterial performances of AR/PMMA with TiO2 and HPQM treated by N-2(aminoethyl)-3-aminopropyl trimethoxysilane. Journal of Reinforced Plastics and Composites. 40(13-14). - Boonluksiri Y, **Prapagdee B**, Sombatsompop N. 2021. Promotion of polylactic acid biodegradation by a combined addition of PLA-degrading bacterium and nitrogen source under submerged and soil burial conditions. Polymer Degradation and Stability. 188. - Junpradit C, Thooppeng P, Duangmal K, **Prapagdee B.** 2021. Membrane cleaning and performance insight of osmotic microbial fuel cell. Environmental Science and Pollution Research. 28(29).
Professor Dr. Nathsuda Pumijumnong	Ph.D. (Natural Science) Hamburg University, Germany : 1995 M.Sc. (Technology of Environment Management) Mahidol University : 1987 B.S. (Forestry) Kasetsart University : 1984	- Preechamart S, **Pumijumnong N**, Bräuning A, Muangsong C, Cai B, Buajan S. 2023. Inter-annual and intra-annual tree-ring oxygen isotope signals in response to monsoon rainfall in northwestern Thailand. The Holocene. 33(3). - Sano M, Pumijumnong N, Fujita K, Hakozaki M, Miyake F, Nakatsuka T. 2023. A wiggle-matched 297-yr tree-ring oxygen isotope record from Thailand: Investigating the 14C offset induced by air mass transport from the Indian Ocean. Radiocarbon. 65 (2). - **Pumijumnong N**, Muangsong C, Buajan S, Songtrirat P, Chatwatthana R, Chareonwong U. 2023. Factors

Name - Surname	Degree/Institute/Graduation Year	Academic Works
		affecting cambial growth periodicity and wood formation in Tropical Forest Trees: A review. Forests. 14(5). - **Pumijumnong N**, Muangsong C, Panthi S, Buajan S, Cai B, Kulsuwan, Kongsombat P. 2023. A 225-year pine (Pinus latteri) tree-ring record of pre-monsoon relative humidity variation in Nan province of northern Thailand and the linkage with large-scale ocean-atmospheric circulations. Global and Planetary Change. 230. - Kaewmano A, Fu PL, Fan ZX, **Pumijumnong N**, Zuidema PA, Bräuning A. 2022. Climatic influences on intra-annual stem radial variations and xylem formation of Toona ciliata at two Asian tropical forest sites with contrasting soil water availability. Agricultural and Forest Meteorology. 318. - Zuidema PA, Babst F, Groenendijk P, Trouet V, Abiyu A, Acuña-Soto R, Adenesky-Filho E, Alfaro-Sánchez R, **Pumijumnong N**, et al. 2022. Tropical tree growth driven by dry-season climate variability. Nature Geoscience. 15(4). - Preechamart S, **Pumijumnong N**, Bräuning A, Muangsong C, Cai B, Payomrat P, Buajan S, Wang F, Li M. 2022. Tree-ring oxygen isotope chronology of teak log coffins in northwestern Thailand and its relationship with Pacific Decadal Oscillation and El Niño-Southern Oscillation. Quaternary International. 629. - Arunrat N, **Pumijumnong N**, Sereenonchai S, Chareonwong U, Wang C. 2021. Comparison of GHG emissions and farmers'profit of large-scale and individual farming in rice production across four regions of Thailand. Journal of Cleaner Production. 278. - **Pumijumnong N**, Songtrirat P, Buajan S, Preechamart S, Chareonwong U, Muangsong C. 2021.

Name - Surname	Degree/Institute/Graduation Year	Academic Works
		Climate control of cambial dynamics and tree-ring width in two tropical pines in Thailand. Agricultural and Forest Meteorology. 303. - Surayothee W, Buajan S, Fu P, **Pumijumnong N**, Fan Z, Panthi S, Finnegan PM, Zhang Y, Chen Y, Tor-Ngern P, Chanthorn W, Nathalang A, Brockelman WY. 2021. Growth-climate relationships and long-term growth trends of the tropical forest tree choerospondias axillaris (Anacardiaceous) in east-central Thailand. Forests. 12(12). - Ponok N, Arunrat N, **Pumijumnong N**, Hamasaki H, Sereenonchai S. 2021. Challenges of water policy involvement of the community in the East Coast River Basin of Thailand. Water (Switzerland). 13(23). - Arunrat N, **Pumijumnong N**, Sreenonchai S, Chareonwong U. 2020. Factors controlling soil organic carbon sequestration of highland agricultural areas in the Mae Chaem Basin, Northern Thailand. Agronomy (Scopus); Agronomy-Basel (WoS). 10(2). - Buajan S, **Pumijumnong N**, Maungsong C, Cai B, Wang F, Li M. 2020. The potential of teak log coffins collected from Namjang Cave in Northwestern Thailand for studying the coffin culture and paleoclimate in Southeast Asia. Archaeological and Anthropological Sciences. 12(7). - **Pumijumnong N**, Bräuning A, Sano M, Nakatsuka T, Muangsong C, Buajan S. 2020. A 338-year tree-ring oxygen isotope record from Thai teak captures the variations in the Asian summer monsoon system. Scientific Reports. 10(1). - Rakthai S, Fu PL, Fan ZX, Gaire NP, **Pumijumnong N**, Eiadthong W, Tangmitcharoen S. 2020. Increased drought sensitivity results in a declining tree growth of Pinus latteri in northeastern Thailand. Forests. 11(3).

Name - Surname	Degree/Institute/Graduation Year	Academic Works
Associate Professor Dr. Nuanchan Singkran	Ph.D. (Natural Resources (Aquatic Science) Cornell University, USA : 2007 M.Sc. (Environmental Science) Chulalongkorn University : 1999 B.S. (Marine Science) Chulalongkorn University : 1993	- **Singkran, N**. (2020). Assessment of urban product consumption and relevant waste management. Journal of Material Cycles and Waste Management, 22(4), 1019-1026. - **Singkran, N**., Anantawong, P., Intharawichian, N., & Kunta, K. (2019). The Chao Phraya River Basin: water quality and anthropogenic influences. Water Science and Technology-Water Supply, 19(5), 1287–1294. - **Singkran, N**. (2018). Urban product analysis and management of Bangkok Metropolis. Technology Analysis & Strategic Management, 30(11), 1269–1282.
Associate Professor Dr. Paramita Punwong	Ph.D. (Environmental Science) University of York, UK. : 2013 M.Sc. (Botany) Chulalongkorn University : 2007 B.Sc. (Biology) Prince of Songkla University : 2004	- Songtham, W., Kruainok, P., **Punwong, P**., Mildenhall, D. C. Depositional environments of the meandering Pran Buri River, Southwestern Thailand during the last 1000 years. (2020). Songklanakarin Journal of Science and Technology, 42(2), 430-438. - Chabangborn, A., **Punwong, P**., Phountong, K., Nudnara, W., Yoojam, N., Sainakum, A., & Sompongchaiyakul, P. (2020). Environmental changes on the west coast of the Gulf of Thailand during the 8.2 ka event. Quaternary International, 536, 103-113. - Englong, A., **Punwong, P**., Selby, K., Marchant, R., Traiperm, P., & Pumijumnong, N. (2019). Mangrove dynamics and environmental changes on Koh Chang, Thailand during the last millennium. Quaternary International, 500, 128-138.
Lect.Dr.Phatra Samerwong	Ph.D. Social Science (Environmental Policy Group) Wageningen University, The Netherlands : 2020 M.Sc. International Development Studies (Sociology of Development) Wageningen University, The Netherlands :2012	- Sattraburut, T, **Samerwong, P**, Prueksakorn, K, Piyangkorn, O, & Neamsaard, A. (2022). Factors affecting the opinions of the general public on the reopening of Phuket to foreign tourists during the COVID-19 Situation in 2020. Romphruek Journal of Krirk University, 40(3), 117-138. - Prueksakorn, K., **Samerwong, P**., Sattraburut, T., Ha, H., Ahn, K., & Kim, T. (2022). Adjusting ventilation for heat control in an industrial building using

Name - Surname	Degree/Institute/Graduation Year	Academic Works
	B.A. Political Science (International Affairs) Thammasat University : 2008	computational fluid dynamics: Case study of a heat treatment plant in automobile industry. Thai Environmental Engineering Journal, 36(1), 71-87.

1.2 Number of academic staffs (AUN-QA Criteria 5**)**

Category	M	F	Total		Percentage of Ph.D.
			Headcounts	FTES*	
Professor	-	4	4	1.51	5.80
Associate Professor	10	8	18	7.64	26.09
Assistant Professor	3	15	18	9.76	26.09
Full-time Lecturer	11	5	16	7.91	23.19
Special Lecturer	-	-	-	-	-
Teaching Assistant	-	-	-	-	-
Total	24	32	56	26.82	81.17

*Full Time Equivalent Staff

1.3 FTES units of students and academic staff over the last five academic years (AUN-QA Criteria 5**)**

(Sequence information of the last 5 years)

Academic year	FTES units of academic staff contributed to the program	FTES** units of student	Staff-to-student ratio	Staff-to-Student Ratio
2024	3.35	8.00	1:2.28	1:7.5
2023	3.80	9.00	1:2.37	1:7.5
2022	6.04	20.00	1:3.31	1:7.5
2021-1	4.57	14.00	1:3.06	1:7.5
2020-2	6.16	16.00	1:2.60	1:7.5
2019-3	8.2	18.00	1:2.20	1:7.5
2018-4	18.9	15.00	1:0.79	1:7.5

*Full Time Equivalent Staff, **Full Time Equivalent Student

1.4 Types and number of publications over the last five academic years (AUN-QA Criteria 8**)**

(Sequence information of the last 5 years)

Academic year	Types of publications						Total	No. of academic staff	No. of Publications per academic staff
	National	International Quartile level							
		Q1	Q2	Q3	Q4	No Q			
2017	20	16	11	8	0	2	57	57	1.00
2018	17	20	12	10	8	0	67	57	1.18
2019	14	10	5	14	5	6	54	56	0.96
2020	17	19	21	7	3	2	69	53	1.30
2021	7	42	15	15	4	2	85	57	1.49
2022	16	43	8	13	3	0	83	57	1.46
2023	1	41	13	7	3	1	66	56	1.18
2024	9	49	11	10	1	2	82	56	1.46

Section 2 Information on Students and Their Educational Achievement

2.1 Student Statistics (AUN-QA Criteria 6**)**

(Sequence information of the last 5 years)

Students Retention		Academic Year				
		2024	2023	2022-1	2021-2	2020-3
1. The ratio of accepted students to the number stated in the MU.2	Number	7	5	1	4	2
	The number stated in the MU.2	3	3	3	3	3
	Percentage (%)	233.33%	166.66%	33.33%	133.00%	66.66%
2. Second-year students retention rate (or third-year)	Number	5	5	1	4	1
	Percentage (%)	100%	100%	100%	100%	100%
3. Dropout rate/Retirement rate	Number	2	-	-	-	1
	Percentage (%)	28.57%	0%	0%	0%	50%

2.2 Students' Educational Achievement of Each Year (AUN-QA Criteria 6&8**)**

(Sequence information of the last 5 years)

Academic Year	No. of students					Total
	1st Year	2nd Year	3rd Year	4th Year	> 4th Year	
2024	7	5	1	4	1	18
2023	5	1	4	2	2	12
2022-1	1	4	2	1	2	10
2021-2	4	2	1	6	6	19
2020-3	2	1	1	4	1	9

Academic Year	No. of students	No. Completed first degree in			Percentage of the graduation rate in the program's cycle.	No. Dropout during/Retirement			
		3 years	4 years	> 4 years		1st Year	2nd Year	3rd Year	≥ 4th Year
2024	**7**	**-**	**-**	**-**		**-**	**1**	**-**	**-**
2023	1	-	-	-	-	-	-	-	1
2022-1	2	-	-	-	1 (50)	-	-	-	2
2021-2	4	-	-	-	**-**	-	-	-	4
2020-3	1	-	-	-	-	-	-	-	1

2.4 Employability and further study of graduates (AUN-QA Criteria 8**)**

(Sequence information of the last 5 years)

Employment rate of graduates/Rate of graduates furthering their studies	An academic year of graduation				
	2023	2022-1	2021-2	2020-3	2019-4
No. of graduates	4	3	1	2	2
1. No. of further studying people	-	-	-	-	-
2. No. of employed people within 1 year	4	3	1	2	2
3. No. of employed people within 2 years	-	-	-	-	-
4. No. of unemployed people	-	-	-	-	-

2.5 The satisfaction of stakeholders towards program (AUN-QA Criteria 8**)**

Summary of stakeholders' feedback on satisfaction and dissatisfaction from using a 5-level evaluation:

1. **Percentage of satisfied stakeholders:**
    - Calculated from the sum percentage of stakeholders who rated levels 4 (satisfied) and 5 (very satisfied)

Stakeholders	Survey academic year				
	2024	2023	2022	2021	2020
1. Student	4.80	4.11	3.12	4.2	4.94
2. New graduate	4.97	4.19	4.38	3.95	4.30
3. Alumni	-	-	-	-	-
4. Employer	-	-		5	-

2. **Percentage of dissatisfied stakeholders:**
    - Calculated from the sum percentage of stakeholders who rated levels 1 (very dissatisfied) and 2 (dissatisfied)

Stakeholders	Survey academic year				
	2024	2023	2022	2021	2020
1. Student	0	0	0	0	0
2. New graduate	0	0	0	0	0
3. Alumni	0	0	0	0	0
4. Employer	0	0	0	0	0

3. Average satisfaction score of stakeholders:

Stakeholders	Survey academic year				
	2024	2023	2022	2021	2020
1. Student	4.80	4.11	3.12	4.2	4.94
2. New graduate	4.97	4.19	4.38	3.95	4.30
3. Alumni	-	-	-	-	-
4. Employer	-	-		5	-

Section 3 The Program's Educational Management Effectiveness

3.1 Students learning outcomes in the compulsory courses

Students' Educational Achievement	Academic Year				
	2024	2023	2022	2021	2020
1. % of courses with average student grades between 2.5 and 3.5	N/A	N/A	N/A	N/A	N/A

2. % of courses with average student grades < 2.5	N/A	N/A	N/A	N/A	N/A
3. % of courses with average student grades > 3.5	N/A	N/A	N/A	N/A	N/A
4. % of courses with > 10% of students not passing the course (more than 10% of students must re-enrollment)	N/A	N/A	N/A	N/A	N/A

3.2 Assessment of Learning Outcomes at Program Level for Graduates

3.2.1 Effectiveness of Curriculum Management, Teaching, and Assessment of Program Learning Outcomes (PLOs)

PLOs	Analysis of the effectiveness of teaching/assessment	A development plan to increase efficiency/effectiveness
PLO1 Demonstrate moral ethics as a professional in the field of environment and natural resource research	Graduates stated that they achieve 100% of PLO1	The curriculum is in the initial stages of design and is currently piloting a student learning outcome assessment for in academic year 1/2567. To enhance the assessment process and ensure that it accurately measures the intended learning outcomes, the curriculum team will conduct a thorough review and analysis of the assessment methods.
PLO2 Analyze the complex relationships between natural and human systems	Graduates stated that they achieve 96.25% of PLO2	
PLO3 Solve environmental problems using accurate information, technology, and modern tools	Graduates stated that they achieve 90% of PLO3	
PLO4 Integrate facts, concepts, and methods from multidisciplinary approaches to make ethical and informed judgments on complex environmental issues	Graduates stated that they achieve 92.5% of PLO4	
PLO5 Create novel interdisciplinary research studies for sustainable development at the state, national and regional level in terms of publication and innovation	Graduates stated that they achieve 92.5% of PLO5	

3.2.2 Overall Program Effectiveness (SWOT Analysis)

Strengths:

1. The curriculum sets clear learning outcomes for all courses, aligned with the needs of diverse stakeholders, the learning sequence, and the university's vision and mission. It covers both general and specialized learning outcomes and is effectively communicated to all stakeholders.
2. The courses employ a variety of assessment methods, which are communicated to students to help them achieve the expected learning outcomes and course objectives.

Weaknesses:

1. There is currently no centralized system for collecting feedback and suggestions from stakeholders. Initially, data is collected and stored on Google Drive and shared with the curriculum management committee.
2. The curriculum is still under development and is piloting a student learning outcome assessment. Further revisions will be made.

Opportunities:

1. The implementation of student learning outcome assessments provides an opportunity to gather data for improving the curriculum and instruction.

Threats:

1. The curriculum is in the initial stages of design and is currently piloting a student learning outcome assessment for in academic year 1/2567 so there is the need to review and improve data collection methods.

Section 4 Quality Assurance of the Curriculum

4.1 Curriculum Quality Assessment according to the Quality Assurance Criteria Selected by the Curriculum

Key Performance Indicators (KPIs) chosen by the curriculum

Key Performance Indicators	Academic Year				
	2024	2023	2022-	2021-	2020-
1. At least 80% of all instructors in charge of the program in each program have to participate in meetings that set up plans to evaluate and revise the curriculum.	100%	80%	80%	80%	80%

Key Performance Indicators	Academic Year				
	2024	2023	2022-	2021-	2020-
2. The program must have the details of the curriculum according to TQF2 which is associated with the Thai Qualifications Framework or the standards of the program	100%	100%	100%	100%	100%
3. Instructors must produce program reports according to TQF7 within 60 days after the end of the academic year	100%	100%	100%	100%	100%
4. Every new instructor has to participate in the orientation and receive adequate information on the college's teaching requirements.	100%	100%	100%	100%	No new instructor
5. Full-time instructors must demonstrate academic and/or profession improvement at least once a year.	100%	100%	100%	100%	100%
6. The number of supporting staff who demonstrate academic and/or professional improvement by at least 50 percent each year.	100%	100%	100%	100%	100%
7. 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	N/A	N/A	4.38	3.95	4.30
8. The level of satisfaction from employers of new graduates with an average score of at least 3.5 out of 5	N/A	N/A	-	5	-

4.2 Curriculum Situation Analysis (SWOT Analysis comparing with Curriculum Operations)

Student situation

Strengths

1. The program has a systematic process of receiving students.
2. The learning process of the program has procedures for examination and verification. Quality assurance of the course is clear.
3. The field of environmental research encompasses diverse perspectives, enabling students to engage in comprehensive study and investigation.
4. The faculty has a wide range of experts who are renowned researchers and lecturers at national and international levels.
5. The academic staff has a wide variety of academic networks.

Weaknesses

1. Equipment for teaching and learning support, centralized research, some of which may need improvement and additional.
2. The broad environmental research, students must have wide and deep knowledge, which may cause students to take longer to graduate.
3. Lack of funding for research. Student academic/graduation outcome situation

Opportunities: Environment and Resoruce Studies remain in demand in the job market, especially given the employ environmental officers, either in-house or through consulting firms. Additionally, environmental knowledge is increasingly applied in various organizations.

Threats: The declining birth rate poses a significant threat to student enrollment in the future. As the number of young people decreases, there will be fewer potential students to apply to higher education institutions. This demographic shift could lead to reduced enrollment numbers, impacting the university's financial stability and academic programs.

Employment status of graduates

Strengths: Graduates have a high employment rate or students who enter the program are already employed, and upon graduation, they are promoted to higher positions.

Weaknesses: Due to a low response rate from employers, it is difficult to accurately assess employer satisfaction with graduates.

Opportunities: The environmental job market is vast and offers many opportunities.

Threats:

- Graduates from various institutions have similar core curricula due to national standards, leading to high competition in the job market. However, the environmental field is still in high demand, ensuring a high employment rate for graduates. Feedback from the AUN-QA assessment indicates that while graduates possess sufficient academic knowledge, they may lack in-depth specialization in specific areas. Nevertheless, graduates with a strong learning attitude can develop their expertise further. To enhance their employability, graduates should be equipped with strong communication and presentation skills.

Satisfaction/dissatisfaction situation of stakeholders

Employers' satisfaction towards our alumni as their employees is continuously surveyed with assistance from the Faculty of Graduate Studies. After a 6-month period of employment, employers are asked to contribute to an online evaluation. However, it has been observed that very few graduate employers have participated in this evaluation. Despite the low response rate, the overall satisfaction score of graduate employers towards our alumni ranges from 4.92 to 5 out of 5, based on the survey polls.

4.3 Problems and obstacles in curriculum management and plan for curriculum improvement

Problems and obstacles in curriculum management	Guidelines to improve and develop curriculum management
1. n/a	n/a
2.	

Program Responsible Persons:

Names	Signature
1. Professor Dr. Benjaphorn Prapagdee	
2. Professor Dr. Nathsuda Pumijumnong	Digitally signed by Nathsuda Pumijumnong Date: 2025.09.04 14:30:40 +07'00'
3. Associate Professor Dr. Nuanchan Singkran	Digitally signed by Nuanchan Singkran Date: 2025.09.08 11:41:32 +07'00'
4. Associate Professor Dr. Paramita Punwong	
5. Lect. Dr. Phatra Samerwong	

Date 4 September 2025

Program Chair : Associate Professor Dr. Paramita Punwong

Signature ..... Date 4 September 2025

Approved by Assistant Professor Dr.Allan Sriratana Tabucanon (Head of the Department)

Signature ..... Digitally signed by Allan Sriratana Tabucanon Date: 2025.09.11 12:06:41 +07'00' Date.....

Approved by Associate Professor Dr.Kitikorn Charmondusit (Dean)

Signature : ..... Date.....

Appendix 9

COURSE SPECIFICATION

Name of higher education institution : Mahidol University

Campus/Faculty/Department : Faculty of Environment and Resource Studies

General information

1. **Code and course name:** ENID 898 Dissertation
2. **Number of credits:** 48 (0-144-0) credit (lecturer-practices-self-study)
3. **Courses and course types:** Doctor of Philosophy Program in Environment and Resource Studies (International Program)
4. **Teachers in charge of courses and instructors:** Doctor of Philosophy Program in Environment and Resource Studies (International Program) Committee and Program instructors
5. **Semester/year:** 1st semester, 1st year
6. **Date of last preparation or update of course details:** .....

Goals and Objectives

1. Objectives of the Program

The objectives of the program are;

1. Demonstrate ethical conduct, academic integrity, and professional reliability in environmental and natural resource management research;
2. Demonstrate a comprehensive understanding of the principles and theories in environmental and natural resource management, engage in self-directed learning, and remain updated on academic and technological advancements in the field;
3. Creatively research design, critically analyse, and criticize research in the field of environmental and natural resource management;
4. Utilize information technology for mathematical and statistical analysis, data compilation, and interpretation to conduct research, as well as for research presentation and dissemination.

5. Demonstrate leadership and the ability to work collaboratively across diverse cultural and geographic contexts while maintaining a high level of responsibility for assigned tasks.

2. The purpose of developing or improving the program

The rapid economic growth and expansion of human settlements pose significant environmental risks, including unsustainable urban development that places immense pressure on natural resources and contributes to environmental degradation. Furthermore, the escalating effects of climate change and natural disasters have become increasingly severe, evolving in complexity and requiring extensive time and effort to mitigate. Climate change, in particular, stems from a combination of environmental factors and necessitates active engagement from all sectors to address every stage of the pollution cycle. Effectively responding to these challenges requires multi-level regional cooperation and a comprehensive, integrated approach to problem-solving. As a member of ASEAN, Thailand plays an active role in advancing initiatives to address environmental issues through the regional ASEAN platform. This platform facilitates knowledge-sharing and fosters strategic partnerships that leverage modern expertise and technological advancements for the effective management of natural resources and the promotion of sustainable environments. In addition to regional efforts, global frameworks such as the Paris Agreement, the Sustainable Development Goals (SDGs), and circular economy models provide essential mechanisms for combating climate change and environmental degradation. A multi-level regional approach encourages the exchange of ideas, innovation, resources, and strategies, ensuring that solutions are tailored to both local and regional contexts. Moreover, adopting a holistic approach that integrates economic, social, and environmental considerations is essential for achieving long-term sustainability and resilience in addressing global environmental challenges. Preparing graduates to navigate future challenges is of paramount importance. Therefore, research systems must be adaptable and responsive to shifts in economic development, enabling them to contribute effectively to problem-solving and sustainable progress.

Sustainable development has emerged as a globally recognized framework, emphasizing the need to meet present-day demands while ensuring the preservation of a healthy environment for future generations. Development, however, can yield both positive and negative social and environmental impacts, depending on the extent to which these factors are integrated into decision-making processes. Higher educational institutions play a crucial role in fostering sustainable development by promoting the principles of “Understand, Achieve, and Develop”, as outlined in the Royal Development Philosophy of His Majesty King Rama IX. Through education, research, and innovation, Higher educational institution contributes to equipping communities with the knowledge

and skills necessary to establish a balanced and sustainable relationship between humans, natural resources, and the environment.

Course Description and Implementation

Credits (lecture – practice – self-study)

ENID 898 Dissertation 48 (0-144-0)

สวคร 898 วิทยานิพนธ์

Research design; proposal presentation; research ethics; data and information classification; data analysis; research result synthesis and discussion; compilation of research result and dissertation writing; dissertation presentation, research dissemination; research paper publication and presentation; research dissemination ethics.

การออกแบบการวิจัย การเสนอโครงร่าง จริยธรรมการวิจัย การจำแนกข้อมูลและข่าวสาร การวิเคราะห์ข้อมูล การสังเคราะห์และการอภิปรายผลการวิจัย การรวบรวมผลการวิจัยและการเขียนวิทยานิพนธ์ การนำเสนอวิทยานิพนธ์ การเผยแพร่ผลงานวิจัย การตีพิมพ์และนำเสนอผลงานวิจัย จริยธรรมในการเผยแพร่ผลงานวิจัย

Development of Student Learning Outcomes

1. Moralities and Ethics

1.1 Moralities and Ethics that need to be developed.

1) Capable of demonstrating respect for rules and regulations in accordance with professional ethics

2) Capable of demonstrating academic integrity and prioritizing societal benefits

1.2 Processes or activities to improve learning outcomes.

1) Organize an orientation for students on moral and ethical discipline

2) Incorporating morals and ethics to students at all times

3) Continuously evaluate and inform students periodically so that students have the opportunity to improve and develop themselves.

1.3 Methods for evaluating learning outcomes.

1) Observe and assess student behavior from the performance evaluation in research progress by the program committee and advisors.

2. Knowledge

2.1 Knowledge that must be gained

1) Capable of employing research methodologies to generate new concepts or advance knowledge in the field of environmental and natural resource

management

2) Capable of applying research findings to holistic problem-solving and diverse contexts

2.2 Processes or activities to improve leaning outcomes

1) The program provides workshops for students and each semester, students are required to report on their progress and hold a seminar on environment and natural resources.

2.3 Methods for evaluating learning outcomes

1) Students can assess the workshops using the assessment form provided by the program.

2) Student progress reports and academic forum are assessed by the program committee and the major advisor.

3. Intellectual skills

3.1 Intellectual skills to be developed

1) Capable of creatively designing, collecting, analyzing, and interpreting data using appropriate research methodologies

2) Capable of evaluating, synthesizing, and critically analyzing scientific literature to support research findings

3) Capable of proposing innovative solutions for complex problem-solving and decision-making

4) Capable of effectively communicating complex environmental issues to policymakers, stakeholders, and the public

5) Capable of utilizing information technology for self-learning, research presentation, and dissemination

3.2 Processes or activities to improve leaning outcomes

1) In organizing a workshop, students may work in groups.

2) Qualification examination

3) Proposal defense

4) Dissertation defense

5) Research manuscript

3.3 Methods for evaluating learning outcomes

1) Scores for the Qualification Examination

2) Evaluate forms according to the issues identified to the students.

4. Characters

4.1 Interpersonal skills and hands-on responsibilities should be developed.

1) Capable of embodying Mastery, Altruism, Harmony, Integrity, Determination, Originality, and Leadership in alignment with Mahidol University's core values

2) Capable of working collaboratively across diverse cultural and geographic contexts to develop region-specific environmental solutions

3) Capable of continuous professional development to enhance expertise and remain responsive to changes in the era of disruptive technology.

4.2 Processes or activities to improve leaning outcomes

1) The program provides students with an orientation to understand interpersonal and responsibilities, as well as to create activities for harmony and teamwork.

2) In organizing a workshop, students may work in groups.

4.3 Methods for evaluating learning outcomes

1) Assessed by observing behavior, listening, expressing opinions and responding in presentations.

Lesson plans and assessments

1. Lesson Plans

Details for 4 workshops provided by the Program are in at the end of this appendix

Year	Subject	Teaching activities	Instructors
1	Semester 1		
	1.1.1 Workshop 1: The Natural Resource Assessment and Analysis	- Lecture - Group discussion - Group Presentation	Program committee
	1.1.2 Workshop 2: Technology of Environmental Pollution Management	- Lecture - Group discussion - Assignments	Program committee
	1.1.3 Progress report (2 times)	Presentation	Program committee and major advisor
	1.1.4 Academic forum	Presentation	Program committee and major advisor
	1.1.5 Qualification examination	Presentation and oral examination	Program committee and major advisor
1	**Semester 2**		
	1.2.1 Workshop 3: Research Methodology	- Lecture	Program committee

Year	Subject	Teaching activities	Instructors
	and Academic Writing	- Practices - Assignment	
	1.2.2 Workshop 4: Advanced Statistics	- Lecture - Practices	Program committee
	1.2.3 Progress report (2 times)	Presentation	Program committee and Major advisor
	1.2.4 Academic forum	Presentation	Program committee and major advisor
	1.2.5 Proposal defense	Presentation	Dissertation comittee
	1.2.6 Dissertation activities	Revised the proposal	Major advisor, dissertation committee
2	**Semester 1**		
	2.1.1 Progress report (2 times)	Presentation	Program committee and major advisor
	2.1.2 Academic forum	Presentation	Program committee and major advisor
	2.1.3 dissertation activities	Data collection	Major advisor, dissertation committee
2	**Semester 2**		
	2.2.1 Progress report (2 times)	Presentation	Program committee and major advisor
	2.2.2 Academic forum	Presentation	Program committee and Major Advisor
	2.2.3 Dissertation activities	Data evaluation	Major advisor, dissertation committee
	2.2.4 1st manuscript	Manuscript writing and submission	Major advisor, dissertation committee
3	**Semester 1**		
	3.1.1 Progress report (2 times)	Presentation	Program committee and major advisor
	3.1.2 Academic forum	Presentation	Program committee and major advisor

Year	Subject	Teaching activities	Instructors
	3.1.3 Dissertation activities	Results writing	Major advisor, dissertation committee
3	**Semester 2**		
	3.2.1 Progress report (2 times)	Presentation	Program committee and major advisor
	3.2.2 Academic forum	Presentation	Program committee and major advisor
	3.2.3 2nd manuscript	Manuscript writing and submission	Major advisor, dissertation committee
	3.2.4 Dissertation defense	Presentation	Major advisor, dissertation committee

5. Assessment

PLOs	Learning Activities	Assessment	Achievement Indicators	Semester
1.	1. Attending Workshops 1-3/training (group discussion, assignment)	1. Formative feedback from lecturers (for workshops)	1.Satisfying formative feedback from lecturers and attendance mandatory, with a minimum of 80% required	1, 2
	2. Working out with human/animal ethics application	2. Human/animal ethics assessment	2. No ethical misconduct with human/animal ethics approval	3, 4
	3. Presentation in progress report and academic forum	3. Progress report assessment & academic forum assessment	3. Satisfying progress report and academic forum	1, 2, 3, 4, 5, 6

PLOs	Learning Activities	Assessment	Achievement Indicators	Semester
	4. Proposal writing	4. Proposal assessment rubric	4. Approved research proposal	2
	5. Dissertation writing	5. Anti-plagiarism check for written assignment and thesis/dissertation	5. Pass the anti-plagiarism check	6
	6. Manuscript writing	6. Anti-plagiarism check for publication	6. Pass the anti-plagiarism check	4, 5
2.	1. Attending Workshops 1-4/training (group discussion, assignment)	1. Formative feedback from lecturers (for workshops)	1.Satisfying formative feedback from lecturers and attendance mandatory, with a minimum of 80% required	1, 2
	2. Presentation in progress report and academic forum	2. Progress report assessment & academic forum assessment	2. Satisfying progress report and academic forum	1, 2, 3, 4, 5, 6
	3. Presenting assignment and analysis of a case study from related articles for qualifying examination	3. Qualifying examination rubric	3. Pass the qualifying examination	1
	4. Proposal writing	4. Proposal assessment rubric	4. Approved research proposal	2
	5. Dissertation writing	5. Dissertation defense assessment rubric	5. Pass dissertation defense	6
	6. Manuscript writing	6. Peer review process for journal	6. Articles are accepted for	4, 5

PLOs	Learning Activities	Assessment	Achievement Indicators	Semester
		submission	publication	
3.	1. Attending workshops 1-3 (group discussion, assignment)	1. Formative feedback from lecturers (for workshops)	1.Satisfying formative feedback from lecturers and attendance mandatory, with a minimum of 80% required	1, 2
	2. Reading assignment and analysis of a case study from related articles for qualifying examination	2. Qualifying examination rubric	2. Pass the qualifying examination	1
	3. Academic forum	3. Academic forum assessment	3. Satisfying academic forum	1, 2, 3, 4, 5, 6
	4. Proposal writing	4. Proposal assessment rubric	4. Approved research proposal	2
	5. Dissertation writing	5. Dissertation defense assessment rubric	5. Pass dissertation defense	6
	6. Manuscript writing	6. Peer review process for journal submission	6. Articles are accepted for publication	4, 5
4.	1. Attending workshops 1-4 (group discussion, assignment)	1. Formative feedback from lecturers (for workshops)	1.Satisfying formative feedback from lecturers and attendance mandatory, with a minimum of 80% required	1, 2

PLOs	Learning Activities	Assessment	Achievement Indicators	Semester
	2. Reading assignment and analysis of a case study from related articles for qualifying examination	2. Qualifying examination rubric	2. Pass the qualifying examination	1
	3. Academic forum	3. Academic forum assessment	3. Satisfying academic forum	1, 2, 3, 4, 5, 6
	4. Proposal defense	4. Proposal assessment rubric	4. Approved research proposal	2
	5. Self-conducting of research and dissertation writing	5. Dissertation defense assessment rubric	5. Pass dissertation defense	6
	6. Manuscript writing	6. Peer review process for journal submission	6. Articles are accepted for publication	4, 5
5.	1. Academic forum	1. Academic forum assessment	1. Satisfying academic forum	1, 2, 3, 4, 5, 6
	2. Proposal writing	2. Proposal assessment rubric	2. Approved research proposal	2
	3. Self-conducting of research and dissertation writing	3. Dissertation defense assessment rubric	3. Pass dissertation defense	6
	4. Manuscript writing	4. Peer review process for journal submission	4. Articles are accepted for publication	4, 5
6.	1. Academic forum	1. Progress report assessment & academic forum assessment	1. Satisfying academic forum	1, 2, 3, 4, 5, 6
	2. Self-conducting of research and dissertation writing	2. Dissertation defense assessment rubric	3. Pass dissertation defense	6

PLOs	Learning Activities	Assessment	Achievement Indicators	Semester
	3. Manuscript writing	3. Peer review process for journal submission	4. Articles are accepted for publication	4, 5

Assessment and improvement of the program operations

1. Strategies for evaluating the effectiveness of each activity by students.

To evaluate the effectiveness of this activity, the program will be assessed both during the event and, when finished, is composed.

1.1 Group discussion between teachers and learners

1.2 Observation from learners' behavior

1.3 Instructor assessment form and individual activity assessment form

2. Conducting a review and planning to improve the effectiveness of the activities from the results of the assessment of the activities achievement and effectiveness have planned to improve teaching and activities details in order to increase the quality as follows:

2.1 Improve activities every 3 years or as student’s suggestion and comments

2.2 Change or switch instructors who conduct activities to give students perspectives on applying this knowledge to problems arising from instructors' research.

Program Learning Outcomes (PLOs)

When completing the program, the graduates will be able to

1. Demonstrate moral ethics as a professional in the field of environment and natural resource research
2. Demonstrate proficiency in academic communication through effective speaking and writing skills
3. Analyze theories, principles, and interrelationships between environmental challenges and the humanities.
4. Solve environmental problems using accurate information, technology and modern tools
5. Integrate facts, concepts, and methods from multidisciplinary approaches to make well-informed academic decisions on complex environmental issues
6. Create novel interdisciplinary research studies for sustainable development at the state, national and regional levels in terms of publication and innovation

Table Relationship between Courses of the Program and Program Learning Outcomes

Course Codes & Course Titles	Number of Credits	Program-Level Learning Outcomes (PLOs)					
		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
First Year							
Semester 1							
ENID 898 Dissertation (QE, proposal development)	2 (0-6-0)	R	R	R	-	-	-
Semester 2							
ENID 898 Dissertation (proposal defense)	8 (0-24-0)	R	R	R	R	-	-
Second Year							
Semester 1							
ENID 898 Dissertation (Data collection and data analysis)	10 (0-30-0)	M	M	M	M	M	-
Semester 2							
ENID 898 Dissertation	10 (0-30-0)	M	M	M	M	M	M

Course Codes & Course Titles	Number of Credits	Program-Level Learning Outcomes (PLOs)					
		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
(Data collection and data analysis, manuscript submission)							
Third Year							
Semester 1							
ENID 898 Dissertation (Data collection and data analysis, manuscript submission)	10 (0-30-0)	M	M	M	M	M	M
Semester 2							
ENID 898 Dissertation (Writing up dissertation book, dissertation defense)	8 (0-24-0)	M	M	M	M	M	M

I = ELO is introduced & assessed
R = ELO is reinforced & assessed
P = ELO is practiced & assessed
M = Level of Mastery is assessed

Workshop 1: The Natural Resource Assessment and Analysis

Ph.D. Program in Environment and Resources Studies

Faculty of Environment and Resources Studies, Mahidol University

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1. **Background**

Natural resources are being depleted day by day due to worldwide population growth and economic development. Therefore, the understanding of natural resources, the tools to explore each type of natural resource, and the assessment of natural resources are a top priority before using those natural resources.

2. **Objectives**

To enable students to:

- Explain the importance and limitations of each type of natural resource.
- Explain tools to explore each type of natural resource
- Initially analyze relationship between natural resources and human

3. **Expected outcome**

- Understand and recognize the value of each resource
- Demonstrate how to ethically use each type of natural resource for maximum benefit and sustainability
- Demonstrate the ability to apply scientific knowledge, principles and tools in evaluating complex natural resource problems.

4. **Participants**

PhD students who are in the 1st year onwards

5. **Date and venue**

The second week of the semester

Faculty of Environment and Resource Studies, Mahidol University, 999 Phutthamonthon Rd 4, Salaya, Phutthamonthon, Nakhon Pathom 73170

6. **Agenda**

Time	Activity	lecturer
08.00 - 08.30	Registration	
08.30 – 10.30	● Lecture on Forest Resources, Tools for Inventory, Data Analysis	Assoc. Prof. Dr. Nathsuda Pumijumnong,
10.30-10.40	Break	

Time	Activity	lecturer
10.40-12.40	● Soil and Water Relationships and case studies	Asst. Prof. Dr. Wanwisa Pansak
12.30 – 13.30	Lunch	
13.00 – 15.00	● Biodiversity loss and assessment and case studies	Assoc. Prof. Dr. Paramita Punwong
15.00-16.00	● Presentation and formative evaluation	All lecturers

7. Student Evaluation

- Five ratings scale for evaluation: Excellent, Good, Moderate, Fair, and Poor
- Evaluation topics:
    i) Course contents are essential knowledge and applicable.
    ii) Course contents are appropriate in accordance with course objectives.
    iii) Satisfaction towards each lecturer's ability to transfer knowledge.
    iv) Satisfaction towards the teaching method and instructional media of each lecturer.
    v) Satisfaction towards the facility and any supporting factors.

Workshop 2: Technology of Environmental Pollution Management

Ph.D. Program in Environment and Resources Studies

Faculty of Environment and Resources Studies, Mahidol University

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1. Background

Environmental pollution has emerged as a critical global concern. Pollutants derived from both natural and anthropogenic sources contaminate key environmental media, including soil, air, and water. Furthermore, the generation of solid and hazardous wastes from human activities exacerbates environmental degradation. Addressing these challenges requires the implementation of appropriate technologies to control pollutant discharges and mitigate their impacts.

2. Objectives

- **Explain** the pathways of pollutants, their impacts on human health, and their interactions across environmental media.
- **Apply** scientific principles to identify the sources and types of environmental pollutants, and determine appropriate technologies for pollution control.
- **Analyze** environmental pollution case studies to assess problems and recommend appropriate technologies for pollution control.

3. Expected outcome

- Understand the pathways of pollutants, their interactions across environmental media, and their impacts on human health.
- Demonstrate the ability to apply scientific knowledge and principles in evaluating complex environmental pollution problems.
- Propose **and justify** the use of appropriate technology for the mitigation and management of environmental pollution.

4. Participants

PhD students who are in the 1st year onwards

5. Date and venue

The second month of the semester

Faculty of Environment and Resource Studies, Mahidol University, 999 Phutthamonthon Rd 4, Salaya, Phutthamonthon, Nakhon Pathom 73170

6. Agenda

Time	Activity	Lecturer
08.30 - 08.45	Registration	

Time	Activity	Lecturer
08.45 - 10.15	**Session 1:** - Introduction to Environmental pollutants - Effects of pollutants on environment and human health - Soil pollution and treatment technology of contaminated soil - Air pollution, air pollution control technology and mitigation measures - Case studies	Prof. Dr. Benjaphorn Prapagdee
10.15 - 10.30	Break	
10.30 - 12.00	**Session 2:** - Water quality analysis - Prevention measures and possible solutions of water pollution - Wastewater treatment technology - Case studies	Assoc. Prof. Dr. Jaruwan Wongthanate
12.00 – 13.00	Lunch	
13.00 – 14.30	**Session 3:** - Sources and types of water pollution - Lake eutrophication and stream pollution - Petroleum hydrocarbons and marine pollution - Ground water pollution - Case studies	Asst. Prof. Dr. Witchaya Rongsayamanont
14.30-14.45	Break	
14.45-16.15	**Session 4:** - Integrated sustainable waste management - Technology of waste treatments and disposal - Laws and regulations for waste management - Current issues related to waste management - Overall summary	Asst. Prof. Dr. Achara Ussawarujikulchai
16.30-17.30	**Formative assessment on:** - Reflection summarizing the key issues learned - Case study analysis by identifying the pollution problem, causes and possible solutions	All lecturers

7. Student evaluation

Five ratings scale for evaluation: Excellent, Good, Moderate, Course contents are essential knowledge and applicable.

vi) Course contents are appropriate in accordance with course objectives.

vii) Satisfaction towards each lecturer's ability to transfer knowledge.

viii) Satisfaction towards the teaching method and instructional media of each lecturer.

ix) Satisfaction towards the facility and any supporting factors.

Workshop 3: Research Methodology and Academic Writing

1. **Background**

Research methodology is important for those studying at a higher education level to provide a framework for initiating research work and related issues which include the importance and origin of the problem, raising questions in research, setting objectives, etc. It also covers literature review and references, and the systematic writing of methodology. In addition, doctoral students must have their work published in a journal accredited by the Ministry of Higher Education Science, Research and Innovation and journals in databases that are accredited by the Faculty of Graduate School, Mahidol University. Thus, this workshop will cover journal selection advice and precautions for article submission, and will include editing, and response after receiving feedback from peer reviewers.

2. **Objectives**

- To enable students to be able to write research methodologies correctly.
- To prepare students to write articles and submit journals that have been certified by the Ministry of Higher Education, Science, Research and Innovation and the Graduate School of Mahidol University.

3. **Expected outcome**

- Students are able to write research methodologies according to academic principles.
- Students can write articles and submit journals with ethic and academic sound.

4. **Participants**

PhD students who are in the 1st year onwards

5. **Date and venue**

The fourth week of the semester

Faculty of Environment and Resource Studies, Mahidol University, 999 Phutthamonthon Rd 4, Salaya, Phutthamonthon, Nakhon Pathom 73170

6. **Agenda**

Time	Activity	lecturer
08.30 - 09.00	Registration	
09.00 – 10.30	Research Methodology writing:	Lect.Dr. Phatra Samerwong

Time	Activity	lecturer
	• Chapter I: Rational, research question, objective, scope of study, time line etc. • Chapter III: methodology • Student exercise	
10.30-12.00	• Chapter II: literature review • References • Academic article writing: Principles of journal selection • Exercise	Assoc. Prof. Dr. Paramita Punwong
12.30 – 13.30	Lunch	
13.00 – 14.30	• Smart Strategies for Academic Presentations: Mastering Effectiveness and Confidence	Dr. Phalaunaphat Siriwong
14.30 – 16.00	• Selecting Academic Journals and Conferences for Publication: A Guide to Achieving Graduation Success	Ms. Isaree Apinya

7. Student Evaluation

- Five ratings scale for evaluation: Excellent, Good, Moderate, Fair, and Poor
- Evaluation topics:
  - x) Course contents are essential knowledge and applicable.
  - xi) Course contents are appropriate in accordance with course objectives.
  - xii) Satisfaction towards each lecturer's ability to transfer knowledge.
  - xiii) Satisfaction towards the teaching method and instructional media of each lecturer.
  - **xiv)** Satisfaction towards the facility and any supporting factors.

Workshop 4: Advanced Statistics

1. Background

Statistical knowledge helps us use the proper methods to collect the data, employ the correct analyses, and effectively present the results. Statistics is a crucial process behind how we make discoveries in science, make decisions based on data, and make predictions. Statistics plays an important role in programming. Nowadays, most advanced statistics is based on programming such as R Program and Python.

2. Objectives

- Understand proper methods to collect the data in advance Statistics in Programming
- Use appropriate statistics in research

3. Expected outcome

- Apply the appropriate tool in statistics in their research.
- Interpret statistical interpretations accurately.

4. Participants

PhD students who are in the 1st year (2nd semester)

5. Date and venue

The fourth week of the semester

Faculty of Environment and Resource Studies, Mahidol University, 999 Phutthamonthon Rd 4, Salaya, Phutthamonthon, Nakhon Pathom 73170

6. Agenda

Time	Activity	lecturer
08.00-08.30	Registration	
08.30- 9.00	ıctory • Definition of statistics • Why are statistics important?	Assoc. Prof. Dr. Alyssa Stewart
9.00-10.30	Statistics in programming	Assoc. Prof. Dr. Alyssa Stewart
10.30 -10.40	Break	
10.40 – 12.00	How to select statistic tools for data analysis with selected case studies	Assoc. Prof. Dr. Alyssa Stewart
12.00 – 13.00	Lunch	
13.00 – 15.00	Statistics in programming exercise with selected case studies	Assoc. Prof. Dr. Alyssa Stewart

Time	Activity	lecturer
15.00-15.10	Break	
15.10-16.10	Statistics in programming exercise with selected case studies	Assoc. Prof. Dr. Alyssa Stewart
16.10- 16.30	Course summary	Assoc. Prof. Dr. Alyssa Stewart

7. Student Evaluation

- Five rating scales for evaluation: Excellent, Good, Moderate, Fair, and Poor
- Evaluation topics:
    xv) Course contents are essential knowledge and applicable.
    xvi) Course contents are appropriate in accordance with course objectives.
    xvii) Satisfaction towards each lecturer's ability to transfer knowledge.
    xviii) Satisfaction towards the teaching method and instructional media of each lecturer.
    xix) Satisfaction towards the facility and any supporting factors.