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INOW ASIA

**WP3 Implementation II:
Implementation of the modules and
water living labs in partner countries'
high education institutions campuses**

The INOWASIA Consortium

Universitat de Girona (UdG)	Spain
Fundació Solidaritat Universitat Barcelona (UB)	Spain
World University Service of the Mediterranean (WUSMED)	Spain
Institut de Recherche pour le Développement (IRD)	France
Université Paul Sabatier Toulouse III (UPS)	France
Hanoi University of Science – Vietnam National University (HUS)	Vietnam
Can Tho University (CTU)	Vietnam
National University of Laos (NUOL)	Laos
Souphanouvong University (SU)	Laos
Institute of Technology of Cambodia (ITC)	Cambodia
National University of Battambang (NUBB)	Cambodia

Document Information

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Development of innovative multilevel formation programs for the new water leading professionals in Southeast Asia

Proposal Acronym:

INOWASIA

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D3.5

Authors:

Magali Gerino and Lou Ackermann (UT3)

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Problem-Based Learning, sustainability.

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Introduction

In the dynamic landscape of higher education, implementing innovative pedagogical approaches often encounters intricate challenges, particularly when it comes to securing accreditation for new teaching methods. This challenge was introduced in WP2, specifically in deliverable D2.7, where an exhaustive inventory of accreditation procedures was compiled for the six Asian partner universities involved in the INOWASIA project.

We encountered a notable diversity in accreditation processes while searching for procedures related to aspects like introducing a new subject to an existing Master's program, tweaking subjects within established Master's programs, and crafting entirely new Master's programs. The variations observed, even among universities in the same country, underscored the nature of these procedural frameworks. Importantly, these processes, known for their time-intensive nature, span several years, with the establishment of a new Master's program emerging as the lengthiest undertaking.

Moving forward in the project, specifically outlined in deliverable D3.4, the incorporation of Problem-Based Learning (PBL) courses faced substantial delays. These delays were a result of prolonged timelines associated with convincing academic institutions to adopt a shift not in the subject matter itself but in the very method of instruction. The acceptance of this transformation, marking a departure from traditional teaching methodologies, required extensive negotiation and adaptation within academic circles.

While the comprehensive accreditation process presented challenges extending beyond the project timeline, this deliverable, aptly titled "PBL Sustainability," sheds light on the intricacies that contributed to this outcome. Despite the complications in accreditation, the project achieved a noteworthy milestone by securing letters of engagement from our partner universities. These letters signify a commitment to perpetuate the integration of PBL teaching methodologies into their courses in the upcoming academic years. This deliverable stands as a testament to the enduring dedication of our partner institutions in sustaining and disseminating innovative pedagogy beyond the confines of the INOWASIA project.

Barriers to the accreditation of PBL courses in SEA HEI¹

INOWASIA aimed to introduce Problem-based learning (PBL), a student-centered learning methodology, into the context of training future water professionals in Southeast Asia. However, we encountered significant challenges that hindered our quest for accreditation. The reasons for these difficulties are diverse:

1. **Difficulties integrating the format into curricula:** The innovative nature of PBL has often been misunderstood by academic institutions. Established educational programs struggle to incorporate this format due to constraints in time, resources, and pre-existing structures. They need time to trust the methodology and go through the full accreditation process.
2. **Poor understanding of the methodology by teachers:** Teachers accustomed to more traditional methods faced challenges in fully grasping the principles of PBL. It was a big change of methodology compared to what they have been doing during their whole career.
3. **Paradigm shift in the teacher's role:** Transitioning from a traditional teaching model to student-centered learning requires a paradigm shift for teachers. Some resisted this transformation, hesitant to relinquish their traditional role as knowledge providers to adopt a more facilitative approach.
4. **Not very appropriate for sub-Master's level programs:** PBL may be more challenging to effectively apply in programs below the Master's level due to the need for a strong academic foundation and more advanced problem-solving skills. Undergraduate programs may not be sufficiently tailored to fully leverage this methodology.
5. **Different format from traditional courses:** The gap between PBL and traditional methods has generated some institutional resistance. Existing educational structures struggle to accommodate a learning format that substantially differs from classical educational models. The format of PBL is very different from traditional courses. They are not tailored for 2 hours a week, but rather 3 hours twice a week with a lot of work at home for the students.

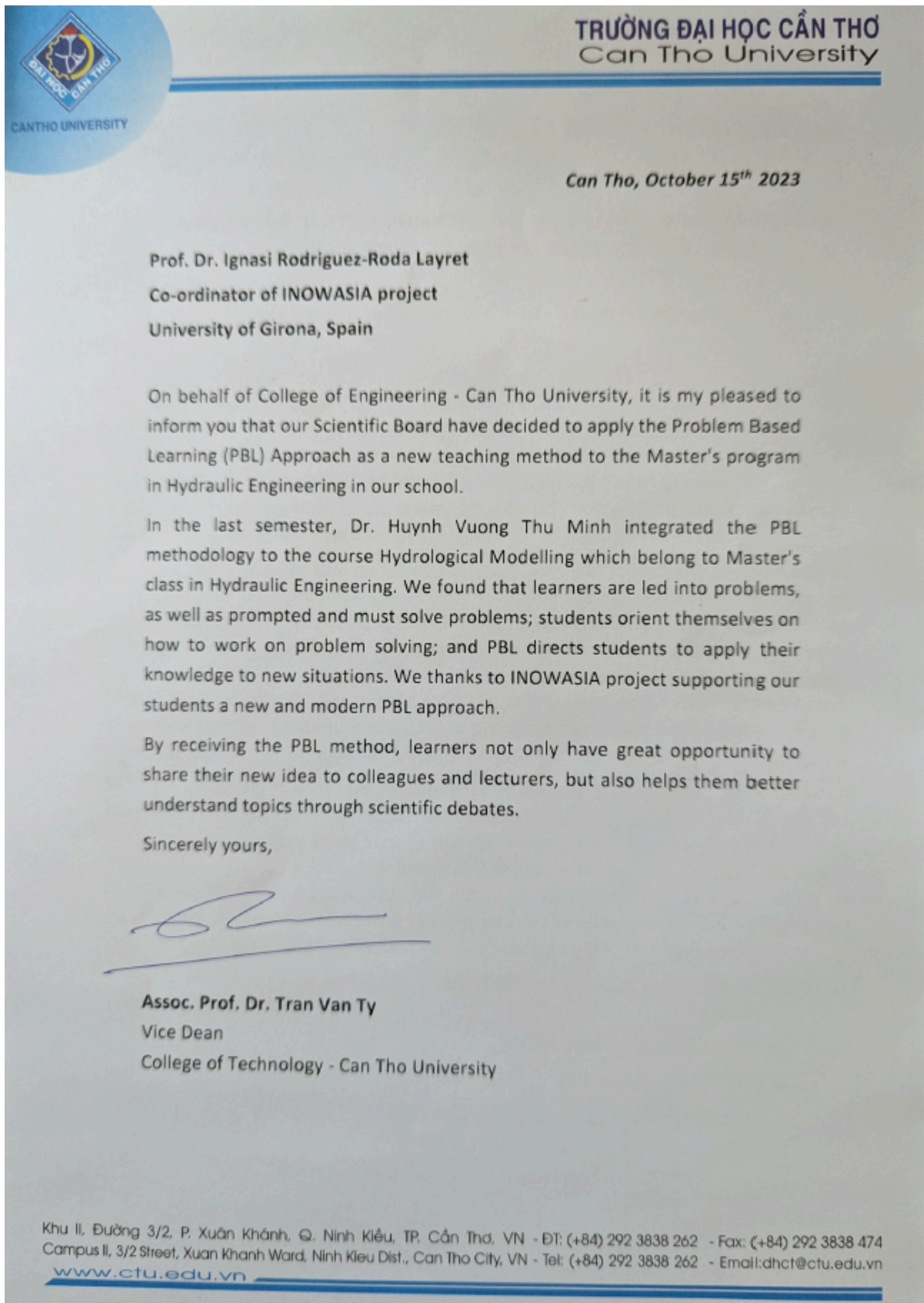
¹ South-East Asian Higher Education Institutions

6. **Non-recognition of soft skills in traditional course evaluations:** Traditional assessments may not adequately capture the soft skills developed through PBL. Conventional evaluation systems may not fully grasp the impact of this methodology on the overall development of students. As explained in D.3.1, the evaluation methodology used in PBL focuses on evaluating soft skills (social skills, communication, etc).

The barriers to the accreditation of PBL in our Erasmus+ project are the result of a combination of institutional, cultural, and pedagogical factors. Overcoming these obstacles will require a concerted effort to increase awareness, train educators, and adapt existing educational structures to enable the successful integration of this innovative methodology.

This is why we asked our 6 partner universities to engage in continuing to use PBL in some courses, to really be able to test the methodology and be able to run the full accreditation in future years.

Letter of engagement at Can Tho University





TRƯỜNG ĐẠI HỌC CẦN THƠ
DỰ ÁN INOWASIA



CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
ĐỘC LẬP – TỰ DO – HẠNH PHÚC

ĐỀ NGHỊ ĐƯA PHƯƠNG PHÁP GIẢNG DẠY MỚI VÀO MÔN GIẢNG CHO HỌC VIÊN THẠC SĨ NGÀNH CÔNG TRÌNH THỦY

Kính gửi: Ban Chủ nhiệm Khoa Công nghệ - Trường Đại học Cần Thơ

Dự án “Phát triển các chương trình đào tạo sáng tạo đa cấp độ cho các chuyên ngành mới về nguồn nước ở Đông Nam Á - INOWASIA” đã được Ban Giám hiệu Trường Đại học Cần Thơ đồng ý cho thực hiện từ tháng 01/2021 đến tháng 01/2024. Đây là dự án được tài trợ bởi Chương trình Erasmus+ và Điều phối thực hiện bởi Trường Đại học Girona (Tây Ban Nha). Dự án nhằm cập nhật và hiện đại hóa phương tiện giảng dạy trong lĩnh vực quản lý bền vững tài nguyên nước tại các trường đại học thành viên ở Đông Nam Á theo các tiêu chuẩn quốc tế, đồng thời tiệm cận với khung đào tạo Bologna của châu Âu.

Qua thời gian triển khai dự án, trên 20 giảng viên của Trường Đại học Cần Thơ đã được Giáo sư Ignasi Rodriguez-Roda Layret từ Trường Đại học Girona giới thiệu phương pháp học tập dựa theo giải quyết vấn đề (Problem Based Learning - PBL). Đây là phương pháp học tiên tiến, chủ động và đặt trọng tâm vào việc tìm hiểu và giải quyết các vấn đề thực tế. Phương pháp này triển khai lần đầu tại Đại học McMaster - Canada vào cuối những năm 1960 và được xem là phương pháp hiện đại, hướng học viên tới việc phát triển tư duy và kỹ năng sáng tạo, tăng cường khả năng tự giải quyết vấn đề, tạo thêm động lực, và quan trọng giúp truyền tải kiến thức vào giải quyết các tình huống thực tế.

Với mong muốn triển khai phương pháp PBL trong thực tế giảng dạy, phía dự án INOWASIA đề nghị Ban Chủ nhiệm Khoa Công nghệ cho phép Tiến sĩ Huỳnh Vương Thu Minh - một trong những giảng viên đã tiếp cận với phương pháp PBL - được lồng ghép phương pháp PBL trong giảng dạy học phần Mô hình toán thủy văn cho học viên thạc sĩ ngành Công trình thủy ở học kỳ này. Với những lợi thế của phương pháp PBL, chúng tôi tin chắc rằng các học viên sẽ gia tăng kỹ năng giao tiếp và cũng như khả năng áp dụng kiến thức vào các tình huống mới giúp ích cho công việc tương lai.

Rất mong nhận được sự ủng hộ và chấp thuận của Ban Chủ nhiệm Khoa Công nghệ. Trân trọng kính chào.

Cần Thơ, ngày 03 tháng 01 năm 2023

Đại diện dự án INOWASIA

Đồng ý

Trần Văn Mỹ

PGS. TS. Nguyễn Võ Châu Ngân

Which translates to:



CAN THO UNIVERSITY
INOWASIA PROJECT



SOCIALIST REPUBLIC OF VIETNAM
INDEPENDENCE – FREEDOM – HAPPINESS

**PROPOSAL ON INCLUDING NEW TEACHING METHODS TO
MASTER STUDENTS IN HYDRAULIC ENGINEERING**

To: Board of Directors of College of Technology - Can Tho University

Project “Development of innovative multilevel formation programs for the new water leading professionals in SouthEast Asia – INOWASIA” has been approved by the Rector Board of Can Tho University to be implemented from January 2021 to January 2024. This is a project sponsored by the Erasmus+ Program and coordinated by Girona University (Spain). The project aims to update and modernize teaching facilities in the field of sustainable water resources management at partner institutions in Southeast Asia according to international standards, while also approaching the Bologna training framework of Europe.

During the implementation of the project, over 20 lecturers of Can Tho University were introduced to the problem-based learning (PBL) method by Prof. Ignasi Rodriguez-Roda Layret from Girona University. This is an advanced, pro-active learning method that focuses on understanding and solving practical problems. This method was first deployed at McMaster University - Canada in the late 1960s and is considered a modern method, guiding students to develop creative thinking and skills, enhancing their ability to solve problems on their own topics, create more motivation, and importantly help transfer knowledge to solve real-life situations.

With the desire to implement the PBL method in actual teaching, INOWASIA project requested the Board of Directors of the College of Technology to allow Dr. Huynh Vuong Thu Minh - one of the lecturers who has approached the PBL method - to integrate the PBL method in teaching the Hydrological Mathematical Modeling module for Master's students in the Water Engineering major in this semester. With the advantages of the PBL method, we firmly believe that students will increase their communication skills and the ability to apply knowledge to new situations to help their future work.

We hope to receive the support and approval of the Board of Directors of the College of Technology.

Can Tho, Jan 03rd 2023

Agree for apply the PBL method

On behalf of CTU-INOWASIA project

Tran Van Ty
Vice Dean of College of Technology

Prof. Dr. Nguyen Vo Chau Ngan

Letter of engagement at the National University of Laos



Lao People's Democratic Republic
Peace Independence Democracy Unity Prosperity

National University of Laos
Faculty of Environmental Sciences

Ref. No. 132/FES.2023
Vientiane Capital, Date 22 NOV 2023

Verification Letter

Problem-based Learning (PBL) is a student-centered methodology that let the students to acquire key 21st century personal skill. PBL places the student at the forefront of the learning process by transforming the teacher into a coach who probes and challenges students towards constructing knowledge. Students formulate and pursue their own learning objectives by researching a situation, developing appropriate questions, and producing their own solution to an open problem. They learn concepts instead of just absorbing facts. These enquiry-based teaching methods engage students in creating, questioning, and revising knowledge, while developing their skills in critical thinking, collaboration, communication, reasoning, synthesis and resilience.

Thanks to the INOWASIA project supported by Erasmus+ Programme, Faculty of Environmental Sciences (FES) in the National University of Laos (NUOL) has actively joint the project activities, particularly the development and implementation of PBL methodology in our existing postgraduate curriculums. As Dean of FES in NUOL, I am writing this letter to verify that the PBL methodology has been applied in chapter 6 of the subject called "Biological Approach for Water Quality Monitoring", which is in "Master of Science Programme in Environmental Pollution and Prevention".

In this course, PBL methodology was integrated with our current approaches including lectures, practices, assignments. The local real case studies and complementary hands-on activities such as fieldtrips, lab practices and simulation studies, or training in Water Oriented Living Labs were included.

Yours sincerely,

Assoc. Prof. Dr. Chanda Vongsombath
Dean of Faculty of Environmental Sciences
National University of Laos

Faculty of Environmental Sciences, National University of Laos,
Dong Dok Campus, P.O.Box: 7322, Xaythani District, Vientiane Capital, Lao PDR.
e-mail: fes.info@gmail.com. Tel/Fax: (856-21) 770 561. www.ceds.nuol.edu.la

ຄະນະວິທະຍາສາດສິ່ງແວດລ້ອມ	
ເວລາ	14:35
ວັນທີຂາດ	9 FEB 2023
ເລກທີ	01
ສຳເລັດ	9.2.2023



ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນະຖາວອນ

Ref. No. 507/NUoL
ເລກທີ 507 /ມຊ

ມະຫາວິທະຍາໄລແຫ່ງຊາດ

Agreement on approved and authorized to implement of two Master Courses (Updated version) of Faculty of Environmental Sciences, National University of Laos ຂໍ້ຕົກລົງ

ນະຄອນຫຼວງວຽງຈັນ, ວັນທີ 9 ກຸມພາ 2023

Vientiane Capital, date 9 February 2023

ວ່າດ້ວຍການຮັບຮອງ ແລະ ອະນຸມັດນຳໃຊ້ຫຼັກສູດ ລະດັບປະລິນຍາໂທວິທະຍາສາດ
02 ສາຂາ (ສະບັບປັບປຸງ) ຄະນະວິທະຍາສາດສິ່ງແວດລ້ອມ ມະຫາວິທະຍາໄລແຫ່ງຊາດ

- ອີງຕາມ ຕຳລັດຂອງນາຍົກລັດຖະມົນຕີວ່າດ້ວຍການຈັດຕັ້ງ ແລະ ເຄື່ອນໄຫວຂອງມະຫາວິທະຍາໄລແຫ່ງຊາດ ສະບັບເລກທີ 071/ນຍ, ລົງວັນທີ 16 ມີນາ 2009;
- ອີງຕາມ ຂໍ້ຕົກລົງຂອງລັດຖະມົນຕີ ກະຊວງສຶກສາທິການ ແລະ ກິລາ ວ່າດ້ວຍມາດຖານຫຼັກສູດແຫ່ງຊາດ ລະດັບປະລິນຍາໂທ ສະບັບປັບປຸງ ເລກທີ 4487/ສສກ, ລົງວັນທີ 02 ຕຸລາ 2020;
- ອີງຕາມ ໜັງສືສະເໜີຂອງຄະນະວິທະຍາສາດສິ່ງແວດລ້ອມ ສະບັບເລກທີ 006/ຄສວ, ລົງວັນທີ 30 ມັງກອນ 2023.

President of National University of Laos agreed that

ອະທິການບໍດີ ມະຫາວິທະຍາໄລແຫ່ງຊາດ ຕົກລົງ:

Article 1:
Approved and authorized to implement of two Master Courses of Faculty of Environmental Sciences, National University of Laos:
1) Master of Science Program in Environmental Planning and Management of Project (Updated version)
2) Master of Science Program in Environmental Pollution and Prevention (Updated version)

- ມາດຕາ 1 ຮັບຮອງ ແລະ ອະນຸມັດນຳໃຊ້ຫຼັກສູດ ລະດັບປະລິນຍາໂທວິທະຍາສາດ ຄະນະວິທະຍາສາດສິ່ງແວດລ້ອມ ມະຫາວິທະຍາໄລແຫ່ງຊາດ ຈຳນວນ 02 ສາຂາ ຄື:
- 1) ສາຂາການວາງແຜນ ແລະ ຄຸ້ມຄອງສິ່ງແວດລ້ອມໂຄງການ (ສະບັບປັບປຸງ);
 - 2) ສາຂາມົນລະພິດສິ່ງແວດລ້ອມ ແລະ ການປ້ອງກັນ (ສະບັບປັບປຸງ).
- ມາດຕາ 2 ໃຫ້ຄະນະວິທະຍາສາດສິ່ງແວດລ້ອມເປັນຜູ້ຈັດຕັ້ງປະຕິບັດຫຼັກສູດດັ່ງກ່າວນີ້ ໃຫ້ຖືກຕ້ອງຕາມຫຼັກວິຊາການ ແລະ ທຸກເງື່ອນໄຂທີ່ກຳນົດໄວ້ໃນຫຼັກສູດ;
- ມາດຕາ 3 ອະນຸມັດໃຫ້ແຕ່ລະຫຼັກສູດຮັບນັກສຶກສາໜຶ່ງຊັ້ນ/ຫຼັກສູດ/ຊຸດຮຽນ ດັ່ງລຸ່ມນີ້:
- 1) ສາຂາການວາງແຜນ ແລະ ຄຸ້ມຄອງສິ່ງແວດລ້ອມໂຄງການ ຈຳນວນ 20 ຄົນ;
 - 2) ສາຂາມົນລະພິດສິ່ງແວດລ້ອມ ແລະ ການປ້ອງກັນ ຈຳນວນ 25 ຄົນ.
- ມາດຕາ 4 ໃຫ້ຄະນະວິທະຍາສາດສິ່ງແວດລ້ອມ, ຫ້ອງການການສຶກສາຫຼັງປະລິນຍາດີ, ຫ້ອງການວິຊາການ, ຫ້ອງການແຜນການ ແລະ ການເງິນ, ຫ້ອງການມະຫາວິທະຍາໄລແຫ່ງຊາດ ແລະ ກຸ່ມພາກສ່ວນທີ່ກ່ຽວຂ້ອງຈົ່ງຮັບຮູ້ ແລະ ປະຕິບັດຂໍ້ຕົກລົງສະບັບນີ້ໃຫ້ໄດ້ຮັບຜົນດີ. ພາຍຫຼັງສຳເລັດ 01 ຊຸດຮຽນ ໃຫ້ປະເມີນຜົນການຮຽນ-ການສອນແລ້ວ ລາຍງານໃຫ້ຂັ້ນເທິງຂອງຕົນ ແລະ ຄະນະນຳມະຫາວິທະຍາໄລແຫ່ງຊາດ ຮັບຊາບ ໃນເວລາອັນຄວນ;
- ມາດຕາ 5 ຂໍ້ຕົກລົງສະບັບນີ້ ມີຜົນສັກສິດນັບແຕ່ວັນທີ ລົງລາຍເຊັນເປັນຕົ້ນໄປ.

ປອນສິ່ງ:

1. ຫ້ອງການທີ່ກ່ຽວຂ້ອງ ປອນລະ 01 ສະບັບ;
2. ຄະນະວິທະຍາສາດສິ່ງແວດລ້ອມ 01 ສະບັບ;
3. ເກັບມ້ຽນ 01 ສະບັບ.



ເຊັນແທນອະທິການບໍດີ
ຮອງອະທິການບໍດີ

ສສ.ປອ ສົມຈັນ ບຸນພັນມີ

Associate Professor. Dr. Somchanh Bounphanmy

Letter of engagement at Souphanouvong University



Lao People's Democratic Republic
Peace Independence Democracy Unity Prosperity

Souphanouvong University

No: 39./SU

Luang Prabang... 21... /January/2024

Letters of engagement

Following successful teacher training based on the INOWASIA framework and a positive pilot implementation in two subjects this academic year, On the course Chemistry-Environment in Management master's degree in agriculture and environmental forestry offered by the Faculty of Agriculture and Forest Resources Souphanouvong University, the Problem-Based Learning (PBL) methodology will be formally adopted next year. Evidence of this adoption is included in the revised syllabus (Chapter 6: Wastewater Management) for these subjects and will be documented for future degree verification and accreditation processes.

President of Souphanouvong University



Dr. Soulideth KEOBOUALAPHETH

Letter of engagement at the Institute of Technology of Cambodia



INSTITUTE OF TECHNOLOGY OF CAMBODIA

Russian Federation Boulevard,
P.O. Box 86 Phnom Penh, Cambodia.
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Phnom Penh, 24th January 2024

LETTER OF ENGAGEMENT

Institute of Technology of Cambodia (ITC) is a consortium member of the INOWASIA project, coordinated by the University of Girona and financed by the ERASMUS+ Program, under the action "Capacity Building for Higher Education," with project reference number 619225-EPP-1-2020-1-ES-EPPKA2-CBHE-JP INOWASIA.

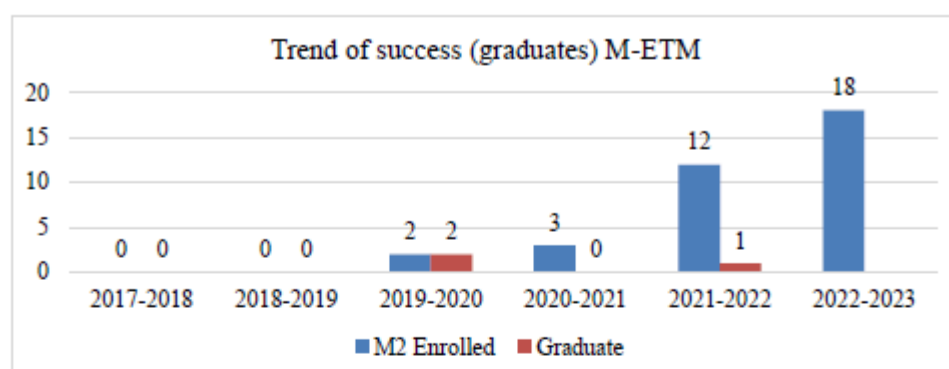
ITC lecturers have participated in the training on the Problem-Based Learning (PBL) method under the framework of INOWASIA. The PBL method was implemented with satisfactory pilot experience with a subject of "Wastewater and Sludge Treatment Process" in the academic year 2022-2023 under the Faculty of Hydrology and Water Resources Engineering. The PBL methodology is an active teaching and learning approach which improving the 21st skill for the class. Seeing the good practices of PBL, ITC has sent two lecturers to get the training for two weeks on PBL at Universitat de Girona (UdG) under another project funded by EU/AFD. This method will be officially and continuously used next years based on the revised syllabus in subjects of Wastewater and Sludge Treatment Process and will be included in the accreditation documentation of the degree in the future.

Asst. Prof. Dr. CHHUON Kong
Dean of Faculty of Hydrology and Resources Engineering
Institute of Technology of Cambodia (ITC)

Attached with this letter:

1. Director's Report 2022-2023, for the 31st Meeting Board of Trustees on 26th June 2023 at ITC. Page 47, page 156, and page 266 indicating the use of PBL and PBL training conducted at ITC under INOWASIA project.
2. Attestation from Director General of ITC for sending two lecturers from ITC to training about PBL method at UdG.
3. Modified Course Syllabus of "Wastewater and Sludge Treatment Process" by Integrating Problem-Based Learning (PBL) Supported by INOWASIA Project.

The time series of enrollments and numbers of graduates from 2017 to 2023 is displayed in the following figure.



Scholarships

In this academic year 2022-2023, eight students (1 female) obtain scholarships and funding support: 2 from HEIP-NUBB, 3 from HEIP-SRU and 3 HEIP-ITC (1 female).

Lecturers

This program involves over 14 faculty members whose specializations range from electrical energy, renewable energy to energy power management. Half the faculty members (7) hold doctoral degrees from Europe, Japan, Korea, and ASEAN. They serve as teaching resources and supervisors for the master students M-ETM. The list of faculty members for M-ETM can be found in Annex 5 or in: <https://grads.itc.edu.kh/faculty-staff/>

Theses and publications

In the academic year 2021-2022, three out of 8 students successfully defended their theses, yet only 1 student met the graduation requirements. All of them conducted the study under the research-based pathway. The list of published theses can be found in Annex 6 or here: <https://grads.itc.edu.kh/thesis-master/>

Regarding the dissemination and publication, 1 article was published in an international journal. The list of publications can be found in Annex 7 or in the webpage of graduate school: <https://grads.itc.edu.kh/publication-master/>

3.3.3.4. Program M-WEE

Program's objective

Master's Degree Program of Water and Environmental Engineering, technically supported by professionals and experts from European and ASEAN partner universities, is designed to provide students with technical skills, competencies, and expertise in the field of water and environment. Students will be equipped with advanced research methods, water-related techniques, modern modeling tools by adapting the problem-based learning (PBL) methods. After graduation, they will be able to design effective techniques and tools, manage projects, and propose suitable solutions toward solving real-world problems including water supply and sanitation, irrigation and drainage, disaster management, wastewater treatment and disposal systems, transport and disposal systems and drainage systems.

6.2.3. Foreign organizations on the ITC campus

As the Cambodia Institute of Technology places more emphasis on research and innovation, we have foreign organizations on our campus that are involved in different areas of research with ITC researchers. These international partners are as follow:

1. Agence Universitaire de la Francophonie (AUF-3)
2. Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD-2)
3. Institut de Recherche pour le Développement (IRD-11)
4. Laboratory Based-Education (LBE-3)
5. Global Green Growth Institute (GGGI-8)
6. Establishment of Risk Management Platform for Air Pollution (ERMPAP-SATREPS Project-1)

For the operation of these organizations, they employ 28 people, including 9 of Cambodian nationality (staff, researchers, and international experts) who are in full activity from different countries: United States, Australia, United Kingdom, Belgium, France, Italy, Japan, and Laos.

6.3. Collaboration with industries

6.3.1. Organizing seminar and workshop for lecturer and student

Between ITC and Industries, under good collaboration, 36 seminars and workshops were organized to share experiences and knowledge both hard and soft skills to ITC lecturers and students.

No .	Date	Subject	Organizer (Faculty / Department)	Co-organizer (Industry)	Participants
1	23/06/2022	Smart Construction Technology	GRU	N/A	GRU
2	30/06/2022	Collaboration to organize a seminar on Siemens Digital Industries Software. This seminar was about spreading awareness to students about the future of manufacturing, the next generation of product design solutions and digital manufacturing	GIC	Steaming Cambodia and Siemens Company	GIC
3	07/07/2022	Special Talk on Water and Life in Tonle Sap Lake	GRU	N/A	GRU
4	20/07/2022	A career seminar to introduce students to the future leader program in Thailand	UIL	CP Group	GCA, GIM, GEE
5	27/07/2022	Finalizing Graduate Student Manual for Improving Graduate School Management at ITC under HEIP	Graduate School	N/A	Graduate School staff
6	27/08/2022	Membrane Technologies for Water Reuse	GRU	N/A	GRU
7	02/09/2022	Professional Development Workshop in Teaching and Learning	N/A	N/A	N/A
8	02/09/2022	Special Session on Problem-Based Learning	GRU	N/A	GRU

18	Dr. Guillaume Lacombe	CIRAD (G-eau)	Hydrologist	25-05-2023	GRU
19	Dr. HUBert Loisel	Université du Littoral Côte d'Opale (ULCO)	Fluid Dynamics, Oceanography	27-04-2023	GRU
20	Dr. Charles VERPOORTER	from Université du Littoral Côte d'Opale (ULCO), Laboratory of Oceanology and Geosciences (LOG) UMR CNRS	Remote Sensing, Environmental Management	27-04-2023	GRU
21	Prof. Ignasi Rodriguez-Roda Layret	Universitat de Girona (UdG)	Problem-Based Learning methodology (PBL)	27-8-22 @ 3-9-22	GRU
22	Dr. Gaetan Blandin,	Universitat de Girona (UdG)	Membrane technology for water reuse	27-8-22 @ 3-9-22	GRU
23	Prof. Aurore Degré	University of Liege	The capacity building of Ph.D. students in soil science and agronomy	3-3-23 @ 6-3-23	GRU
24	Dr. Antonina Torrens Armengol	FUNDACIO SOLIDARITAT UB (FSUB)	Nature Based Solution	4-1-23 @ 5-1-23	GRU
25	Prof. Ignasi Rodriguez-Roda Layret	Universitat de Girona (UdG)	Resources Recovery	4-1-23 @ 5-1-23	GRU
26	Associate Professor Sunil Herat	Griffith University	Waste Management and Circular Economy	7-2-23 @ 11-2-23	GRU
27	Professor Melissa E. Lenczewski	Northern Illinois University	hydrogeochemistry	7-2-23 @ 7-4-23	GRU
28	Prof. Riadh DHAOU	Toulouse INP	Non-Terrestrial Network	19-12-22 @ 23-12-22	GTR
29	Prof. Nathalie RAVEU	Toulouse INP	Antenna Design	20-2-23 @ 03-3-23	GTR
30	Prof. Gregory ZACHAREWICZ	IMT Mines Alès	System Modeling	20-3-23 @ 24-3-23	GTR
31	Prof. Vincent CHAPURLAT	IMT Mines Alès	System Engineering	21-11-22 @ 25-11-22	GTR
32	Prof. Sebastien HARISPE	IMT Mines Alès	Introduction to Machine Learning	21-11-22 @ 25-11-22	GTR

Letter of engagement at the National University of Battambang



N^o 012.6/24 NUBB

Letter of Engagement

To whom it may concern,

After the successful training program on Problem Based Learning (PBL) methodology to our staff and the great success of two PBL courses' implementation under the framework of Erasmus+ CBHE INOWASIA project, NUBB is committed to follow the official implementation of the PBL methodology in the future and bring this good lesson learn to other subjects in our bachelor and master programs.

The successful pilot courses using PBL methodology are (1) **Principle of Ecology** (Chapter 8 - Ecosystem services), Bachelor program in Community Development, taught by Dr. Ratha Chea and (2) **Ecological status and reference condition** in MSc. Sustainable Ecosystem Management (SEM), taught by Mr. Socheat CHREA. Accordingly, the PBL methodology will be officially applied to these subjects in the future and integrated in the course syllabus for official accreditation of the degree. NUBB strongly commits to promote student-centeredness teaching methods, while PBL method is among the most encouraging teaching methodology for our master programs.



Sincerely Yours,

H.E. SOK Khorn

Rector

National University of Battambang

Letter of engagement at the Vietnam National University



VIETNAM NATIONAL UNIVERSITY UNIVERSITY OF SCIENCE

Add: 334 Nguyen Trai street, Thanh Xuan district, Hanoi, Vietnam

Tel: (84-24) 3858 1419/3858 7677 Fax: (84-24) 3858 1419/3858 3061

Website: www.hus.vnu.edu.vn

Hanoi, January 26, 2024

LETTER OF ENGAGEMENT

To whom it may concern,

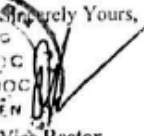
My name is Prof. Dr. Le Thanh Son, Vice Rector of University of Science, Vietnam National University, Hanoi (VNU-HUS).

This letter is intended to certify that one subject entitled Environmental Engineering in the Master's program in "Environmental Chemistry" of our University has been modified by using valuable documents provided by **Development of innovative multilevel formation programs for the new water leading professionals in South East Asia** (INOW ASIA project) funded by Erasmus+. The Environmental Engineering module has been modified by the addition of two chapters, namely "Problems Based Learning" and "Waste water treatment systems" as selected chapters. The Environmental Chemistry module in Bachelor of Chemical Engineering program has been taught with one additional chapter, namely "Problems Based Learning" but the module has not been yet accepted to be modified at this stage. We will evaluate in the subsequent semester to upgrade that module.

The evidence of these adoption is included in the revised syllabus and will be documented for future degree verification and accreditation processes.

On behalf of VNU-HUS, I would like to thank the INOWASIA project for providing valuable materials for improving the Master and Bachelor program in our University.

Sincerely Yours,


Vice Rector
Prof. Dr. LE Thanh Son



Conclusion

In conclusion, the journey to integrate Problem-Based Learning (PBL) into the academic landscape of Southeast Asian universities has been a testament to the resilience and adaptability required for educational innovation. The challenges encountered, ranging from difficulties in curriculum integration to a paradigm shift in the teacher's role, underscored the transformative nature of PBL within established educational frameworks.

Despite these barriers, the INOWASIA project achieved a significant milestone by securing letters of engagement from partner universities, signifying a commitment to perpetuate the integration of PBL teaching methodologies beyond the project's lifespan. While the comprehensive accreditation process posed challenges extending beyond the project timeline, the serious engagement of universities in 2023 marked a crucial turning point.

The successful implementation and testing of PBL courses in 2023 stand as a testament to the dedication of the project team and partner institutions in navigating the complexities of educational innovation. The letters of engagement obtained from representatives and elected people of partner universities solidify the enduring commitment to incorporating PBL into their syllabi in the upcoming academic years.

As the INOWASIA project concludes in January 2024, these letters of engagement serve as a beacon of success, illustrating that, despite the complexities of accreditation, the project has succeeded in fostering a lasting impact on pedagogical approaches in Southeast Asian universities. The commitment of the partner institutions to continue utilizing PBL showcases a shared vision for the future of education in the region, one that embraces innovative teaching methodologies to better prepare students for the dynamic challenges of the water profession.