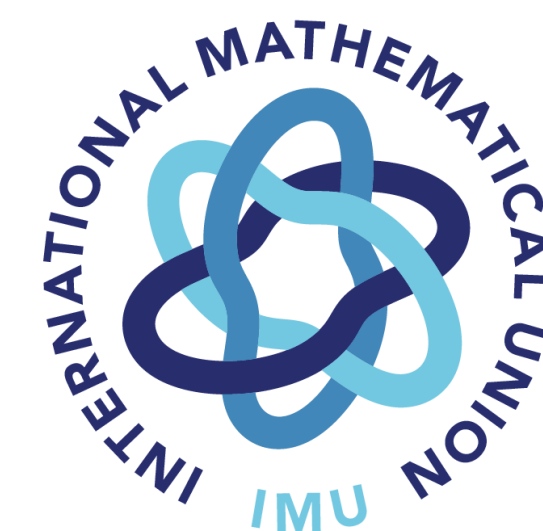


VOLUNTEER LECTURER PROGRAM

Numerical Analysis, Silpakorn University, Thailand



Host: **Pornsarp Pornsawad**, Silpakorn University, Thailand

Volunteer Lecturers: **Joaquim M.C. Correia**, University of Evora, Portugal and **Marília Pires**, University of Evora, Portugal

CONTEXT

At the Silpakorn university, there is a collaborative academic environment with undergraduate, Master's and Ph.D. students, and participants from other universities. However, challenges remain in strengthening mathematics skills and enhancing research collaboration due to limited exposure to advanced methodologies and practical applications. The volunteer-led course addressed these gaps by providing hands-on training, strengthening students' research capabilities, supporting their thesis work, and fostering collaboration for long-term academic development.

CDC SUPPORTED ACTIVITY

The VLP was conducted as part of a Master's study program to strengthen advanced mathematical knowledge and research capacity among graduate students. Undergraduate, Master's, and Ph.D. students participated in the program, fostering an inclusive and collaborative academic environment. The program was supported by international expertise, contributing to teaching and research mentoring. Collaboration spanned local (within Silpakorn University), regional (other Thai universities), and international levels (involving foreign Ph.D. students studying in Thailand and neighboring countries).

IMPACT

The VLP delivered meaningful outcomes in skills development, training, and collaboration.

- Strengthening capabilities in numerical analysis and PDEs equips participants with high-level, transferable research skills enabling them to produce rigorous, publication-quality research. This contributes to increasing the number of well-trained graduates, which is essential for national research capacity.
- Skills in finite difference methods and simulation enable researchers to address context-specific problems (e.g., environmental modeling, engineering systems, health-related simulations), supporting evidence-based solutions for national development.
- Training in computational thinking, structured coding, and validation processes improves the credibility and reproducibility of scientific work. This helps institutions in developing countries meet international research standards.
- These impacts contribute to improving graduate education quality, fostering research culture, and building a sustainable ecosystem for advanced mathematics and computational science in developing countries.

OUTCOMES AND ACHIEVEMENTS

- 3 Master's students have progressed to pursue advanced studies at the University of Évora, reflecting strengthened research readiness and international mobility.
- 1 Master's student is currently preparing a research article for publication, demonstrating progress toward scholarly output.
- Former participants from other Thai universities and neighboring countries have joined a collaborative research group on June 2026, working on a focused topic under the guidance of a research leader, leading to sustained research collaboration and potential joint publications.



REFLECTIONS

The VLP strengthened mathematical capacity by equipping students and young researchers with advanced skills in numerical analysis, PDEs, and computational methods. It enhanced the quality of graduate education through hands-on training and international academic mentoring aligned with global standards. The program also built a strong research pipeline, evidenced by students progressing to Ph.D. studies and producing publishable work. In addition, it fostered sustainable local, regional, and international research networks, supporting long-term collaboration and knowledge exchange.

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