"Innovating Engineering Education with Generative AI"

September 23rd-25th, 2025
INOVA.USP, Campus da Cidade Universitária, São Paulo, SP

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Overarching Workshop Goal: To equip university engineering educators with the knowledge, skills, and strategies to thoughtfully integrate generative AI into their curricula, pedagogy, and assessment methods, fostering responsible innovation and preparing students for an AI-augmented education future.

Day 1 – Tuesday, September 23rd, 2025

Morning

08:00 – 08:15 | **Opening Panel**

08:15 – 11:30 | **Section I – Foundations: Understanding Generative AI and its Impact**

- **Module 1: Introduction to Generative AI in the Engineering Context**
    - Overview of LLMs, Diffusion Models, etc.
    - Key capabilities: text, code, image/video generation; simulation; ideation
    - GenAI tools: ChatGPT, GitHub, Copilot, Midjourney, etc.
    - Activity: Live demos of engineering-related tasks using GenAI

- **Module 2: The Shifting Landscape in Higher Education and Engineering**
    - Opportunities and challenges in academia
    - Industry case studies and skill shifts
    - Activity: Panel with industry professionals on GenAI in practice

11:30 – 12:30 | **Panel Discussion** *Industry Perspectives and Future Workforce Needs*

12:30 – 13:30 | **Lunch** (SWEDEN)

Afternoon

13:45 – 17:30 | **Section II – Ethical Considerations and Responsible AI**

- **Module 3: Ethical Dimensions of AI in Engineering Education**
    - AI bias, data privacy, academic integrity, explainability, and environmental impact
    - Activity: Scenario-based ethical dilemmas

- **Module 4: Fostering Responsible AI Use by Students**
    - Evaluating AI outputs, developing usage guidelines
    - Activity: Brainstorming strategies for teaching ethics with GenAI

Day 2 – Wednesday, September 24th, 2025

Morning

08:30 – 12:00 | **Section III – Reimagining Engineering Content & Curriculum**

- **Module 5: Adapting Content and Learning Objectives**
  - ◦ Core competencies, AI literacy, GenAI-generated content
  - ◦ Activity: Curriculum Mapping exercise

- **Module 6: GenAI for Engineering Problem Solving & Design**
  - ◦ Use cases: design, debugging, data viz, simulation, reporting
  - ◦ Activity: Hands-on problem-solving (discipline-based breakout groups)

12:00 – 13:00 | **Lunch** (SWEDEN)

Afternoon

13:30 – 17:30 | **Section IV – Transforming Pedagogy and Assessment**

- **Module 7: Pedagogical Approaches with GenAI**
  - ◦ Active learning, virtual labs, prompt engineering
  - ◦ Activity: Pedagogy Redesign Challenge

- **Module 8: Rethinking Assessment**
  - ◦ AI-resistant vs. AI-augmented methods
  - ◦ Activity: Designing new assessments considering GenAI use

Day 3 – Thursday, September 25th, 2025

Morning

08:00 – 11:30 | **Section V – Implementation and Future Directions**

- **Module 9: Institutional & Programmatic Strategies**
  - ◦ Ethics policies, infrastructure, faculty development
  - ◦ Activity: Policy drafting and implementation strategy session

- **Module 10: The Future of Engineering Education with AI**
  - ◦ Long-term transformations, moonshot ideas
  - ◦ Activity: Future Gazing session

- **Module 11: Action Planning & Community Building**
  - ◦ Personal action plans, continued learning strategies
  - ◦ Activity: Guided planning + setting up shared communication platform

11:30 – 12:00 | **Closing Panel**

12:00 – 13:00 | **Lunch** (SWEDEN)