International Conference | Interactive Collaborative Learning

Special Session Call for Papers for ICL 2026

Sept 30–Oct 02, 2026, Wasserturm Hotel, Cologne, Germany

"Special Session: Responsible AI in Engineering Education: Competence Development, Pedagogical Design, and Institutional Transformation (RAIEE)"

as part of the 29th International Conference on Interactive Collaborative Learning &

55th IGIP International Conference on Engineering Pedagogy

RAIEE Background and Overview

Artificial Intelligence is fundamentally reshaping engineering practice — and, consequently, redefining the foundations of engineering education. Looking toward 2030, the critical question is no longer whether AI will be integrated into engineering education, but how this integration can be designed to preserve human agency, professional judgment, and long-term societal responsibility. Addressing this challenge requires proactive pedagogical design rather than reactive technological adoption. While AI-enabled systems offer significant potential for efficiency, personalization, and expanded access to knowledge, they simultaneously challenge core principles of engineering pedagogy, including competence development, reflective judgment, accountability, and professional responsibility.

This special session conceptualizes Responsible AI in Engineering Education as a comprehensive educational design challenge rather than a purely technological innovation. Responsibility is framed not as a regulatory add-on, but as a guiding pedagogical principle shaping curriculum design, assessment strategies, institutional governance, and the formation of future engineers. Engineering graduates must not only be capable of using AI systems, but also of critically evaluating, supervising, and contextualizing them. This requires rethinking competence models in AI-augmented learning environments, preventing cognitive deskilling and passive outsourcing of thinking, and fostering reflective, human-centered learning processes grounded in human-in-the-loop pedagogies.

The session addresses risks such as cognitive deskilling and overreliance on automated systems, while highlighting strategies that ensure AI enhances rather than replaces core engineering competencies.

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We invite theoretical, empirical, and design-based research contributions that explore how engineering education can integrate AI in alignment with ethical standards, emerging regulatory frameworks, sustainability goals, and long-term professional responsibility. Contributions may address curriculum redesign, assessment innovation, AI-supported collaborative learning environments, and the integration of AI into engineering problem-solving processes, design-based tasks, and laboratory-based learning environments. By linking engineering pedagogy with responsible innovation, this special session contributes to a sustainable, human-centered, and globally informed transformation of engineering education in the age of AI. Transdisciplinary and international perspectives are explicitly welcomed, particularly those addressing cross-cultural, contextual, and equity-related dimensions of responsible AI integration.

This special session is structured around four interrelated thematic areas that frame Responsible AI in Engineering Education as a pedagogical, cognitive, institutional, and systemic transformation challenge:

1. AI-Mediated Agency and Assessment Integrity in Engineering Education: Exploring how AI reshapes student agency, responsibility, and decision-making, and how assessment design can preserve human judgment and make reasoning visible in AI-augmented contexts.
2. Cognitive Integrity, Explainability, and Reflective AI Literacy: Addressing how AI influences reasoning, knowledge construction, and epistemic trust, and how educational design can prevent cognitive deskilling and foster reflective, responsible AI use.
3. Institutional Governance for Responsible AI Learning Ecosystems: Focusing on how institutions operationalize responsibility through governance, policy, and infrastructure, aligning pedagogical goals with transparency, accountability, and sustainability.
4. From Tool to Cognitive Infrastructure: Rethinking AI's Role in Engineering Educatio: Conceptualizing AI as a persistent cognitive infrastructure that transforms learning processes, competence definitions, and accountability models in engineering education.

We explicitly welcome theoretical, empirical, and design-based contributions, including classroom-based implementations, case studies, and applied research in engineering education contexts.

RAIEE Topics

- Competence models for AI-augmented engineering education
- Assessment and evaluation in AI-supported learning environments
- Human-in-the-loop pedagogies: preserving agency, judgment, and accountability
- Preventing cognitive deskilling through reflective and human-centered AI integration
- Explainability, transparency, and AI literacy in educational contexts
- Institutional AI governance and strategic implementation in higher education
- Responsible AI curriculum design aligned with ethical and regulatory frameworks
- AI as cognitive infrastructure in engineering learning environments
- Rethinking competence, agency, and accountability under persistent AI mediation
- AI and professional responsibility in engineering formation
- Sustainable and ethically aligned AI integration in higher education
- Global and cross-cultural perspectives on responsible AI in engineering education
- Empirical studies on AI-supported collaborative engineering learning
- Design-based and transdisciplinary research on AI-enhanced pedagogical innovation

RAIEE Special Session Chair(s)

- Cristo Leon, New Jersey Institute of Technology, USA, leonc@njit.edu
- Alptekin Erkollar, ETCOP Institute for Interdisciplinary Research, erkollar@etcop.at
- Birgit Oberer, IGIP International Society for Engineering Pedagogy, gs@igip.org

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General Information and Proceedings

Special sessions, held in parallel with the general conference, are an integral part of the conference. They provide researchers in focused areas the opportunity to meet and present their work and offer a forum for interaction among the broader community of technology-enhanced learning, and online engineering worldwide.

Special sessions papers are required to meet the same standards as papers in the general conference and are published in the same conference proceedings. Special Session papers must be submitted to STE submission server (ConfTool® Submission Server) to the respective Special Session track. Special Session papers will be reviewed by at least two members of the Special Session's Program Committee, and acceptance decisions will be made by the conference program Co-Chairs and Special Sessions Chairs. All accepted and presented papers will be published as ICL2026 Proceedings in the Springer series “Lecture Notes in Networks and Systems”, which is indexed among others in Scopus and Compendex.

Important Deadlines

Submissions for the ICL2026 Special Sessions may be submitted by the following deadlines:

15 May 2026	Submission of complete Special Session Papers (no abstract stage)
15 June 2026	Notification of acceptance
15 July 2026	Camera-ready due & Author registration deadline
30 Sept 2026	ICL2026 Conference Opening