2025 Industrial Engineering Division (IED) Call for Papers

The Industrial Engineering Division (IED) of the American Society for Engineering Education (ASEE) seeks papers for presentation at the 132nd ASEE Annual Conference and Exposition in Montreal, Quebec, Canada, June 22-25, 2025.

2025 IED Theme: Generative AI and Industrial Engineering Education

Generative AI refers to a subset of artificial intelligence (AI) techniques focused on generating new, original data or content that is similar to, but not identical to, the data it was trained on. Example generative AI applications include ChatGPT, DALLE, and more. Unlike traditional AI models that primarily focus on classification or prediction tasks, generative AI models are designed to create new data instances, such as images, text, audio, or even entire scenarios. Generative AI holds significant importance for Industrial Engineering for several reasons:

- **Innovation and Optimization:** Generative AI techniques can help industrial engineers explore new design possibilities and optimize existing processes. By generating diverse solutions, engineers can identify innovative approaches to improve efficiency, reduce costs, and enhance productivity within industrial settings.
- **Complex Problem Solving:** Industrial engineering often deals with complex systems and optimization problems. Generative AI algorithms, such as genetic algorithms, neural networks, and reinforcement learning, can assist in solving these intricate problems by exploring vast solution spaces and finding optimal or near-optimal solutions.
- **Simulation and Modeling:** Generative AI enables the creation of realistic simulations and models of industrial processes and systems. These simulations provide valuable insights into system behavior, allowing engineers to predict performance, identify bottlenecks, and evaluate the impact of different design choices without the need for costly physical prototypes.
- **Automation and Decision Support:** Industrial engineers can use generative AI for automating routine tasks and decision-making processes. Machine learning algorithms can analyze large datasets to identify patterns, trends, and anomalies, helping engineers make data-driven decisions more efficiently and accurately.
- **Education and Skill Development:** Introducing generative AI concepts and tools into industrial engineering education equips students with valuable skills for the future workforce. Understanding how to leverage AI technologies for problem-solving and decision-making prepares students to tackle real-world challenges in industrial settings.
- **Interdisciplinary Collaboration:** Generative AI sits at the intersection of various disciplines, including computer science, mathematics, and engineering. By incorporating generative AI into industrial engineering education, students can develop interdisciplinary skills and collaborate effectively with professionals from different backgrounds to tackle complex industrial problems.

Overall, integrating generative AI into industrial engineering education empowers students to leverage cutting-edge technologies for innovation, optimization, and problem-solving in industrial settings, ultimately driving improvements in productivity, efficiency, and sustainability.

ASEE IED Submission Considerations

Relevant submissions are welcome from all engineering disciplines. Considerations for acceptance include the level of innovation, technical merit, demonstrated outcomes and relevance to industrial engineering education. Authors are encouraged to submit work that could be useful to other IE faculty, including strategies for implementation. The IED strongly encourages submissions of diversity, equity and inclusion-related papers. Purely technical papers that have no educational component or papers describing courses that will or have not been taught will most likely not be accepted. Topics of Generative AI integration include, but are not limited to:

- Novel IE curriculum
- Methods for developing and assessing industrial engineering competency
- IE laboratory development
- Application of innovative pedagogical approaches to IE education (e.g. flipped classes, problem based learning, and use of emerging technologies)
- Educational resources such as case studies, web-based course modules, and lab materials for teaching IE topics
- IE Design throughout the curriculum
- Outstanding IE outreach programs
- Successful IE internship and/or co-op programs
- Involving undergraduates in IE related research
- Success with adapting to new IE ABET outcomes
- Diversity, equity and inclusion in IE

The IED is a publish-to-present division. At least one author for each paper must register for and present at the conference. Authors of accepted abstracts will be invited to submit full-length papers for peer review. Papers addressing "work in progress" will be considered. The submission and review process are blind. Do not include the names of institutions or authors anywhere in the abstract or draft paper. All abstracts and papers must be loaded electronically through the ASEE paper management system. Abstracts submitted for the conference should be extended abstracts providing sufficient detail on the proposed work for reviewers to evaluate. Additional information, including the Author's Kit with deadlines and formatting instructions, can be downloaded from the ASEE website. In addition to the ASEE "Publish to Present" requirements, IED requires the support of its authors in "Review to Publish" at both the abstract and manuscript stages.

IED also supports workshops in the areas listed for paper submissions. Persons wishing to have IED promote a workshop for the Annual Conference should retrieve the ASEE workshop form, complete it and send it to the program chair. Workshop submissions will be reviewed for appropriate content. Workshops submitted directly on the ASEE site, prior to IED approval, will not be recommended for inclusion.

Paper Awards and Travel Grant

Please keep in mind, monetary awards, plaques, and the travel grant are not guaranteed. Instead, it depends if ASEE administration un-freezes (i.e., allows access to) the funds.

- **IED Best Paper Award:** All accepted papers will be considered for the IED Best Paper Award. The award includes a plaque of recognition for first place, and a letter of recognition for second place (runner-up), when appropriate. There is an honorarium monetary award of $250 for the first author of the winning paper.
- **New IE Educator Outstanding Paper Award:** Qualified authors will be considered for the New IE Educator Outstanding Paper Award. New IE educators with fewer than seven years of full-time teaching experience. The recipient will be awarded $250 per author, up to $500 per paper. Senior faculty are eligible for the award as coauthors, but not for the monetary award. The award also includes a plaque of recognition.
- **IED Outstanding Student Paper Award:** Student-authored papers are eligible for IED Outstanding Student Paper Award. The recipient will be awarded $250 per author, up to $500 per paper. Faculty are eligible for the award as coauthors, but not for the monetary award. The award also includes a certificate of recognition.
- **Travel Grant:** IED members who have not attended an ASEE Annual Conference may be eligible for the $500 IE Travel Grant for New Attendees. Recipients must present their paper in an IED session and can collaborate with other faculty who are active in ASEE. Email the IED Program Chair if you are interested in applying for the travel grant.

Please forward this message to persons that may be interested in presenting their work, hosting a workshop, or formulating a panel at the Annual Conference. If you have any questions, please contact the program chair.

If you are not a member of the Industrial Engineering Division (IED), please add the IED to your ASEE membership renewal.

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