

# **Student Experiential Learning in Advanced Manufacturing through Participation in the IEOM DC Conference**

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## **Abstract**

Conferences play a critical role in advancing student learning by providing opportunities to engage with cutting-edge technologies, interact with industry leaders, and expand academic and professional networks. This study explores the educational outcomes of NSF-supported students who attended the 9th North American IEOM Society Conference held in Washington, DC, at the University of the District of Columbia, June 4-6, 2024. The conference featured a wide range of technical activities, including keynote presentations, panel discussions, technical sessions, and workshops addressing Industry 4.0 and disruptive technologies. Topics included the Internet of Things (IoT), artificial intelligence (AI), big data analytics, cybersecurity, digital twins, simulation, and innovations in global engineering education.

Beyond technical content, students gained professional development through networking with engineers, researchers, and educators from more than 20 countries. These interactions provided unique insights into global practices, career pathways, and opportunities for future research collaborations. The conference also served as an experiential learning platform where students connected classroom knowledge with real-world applications.

To assess learning outcomes, pre- and post-conference surveys were administered to measure changes in student knowledge and awareness of Industry 4.0. Results revealed substantial improvement, with the percentage of students reporting strong knowledge rising from 30–40% before the event to 50–60% afterward. Qualitative feedback further emphasized the value of exposure to international perspectives, career advice, and the chance to observe how emerging technologies are shaping industrial transformation.

Overall, the findings demonstrate that participation in professional conferences significantly enhances student understanding of digital manufacturing and related domains, while also fostering global awareness, career readiness, and professional growth.

## **Keywords**

Student learning, IoT, Industry 4.0, digital twin, networking, and career development.

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## **Biographies**

**Dr. Ahad Ali** is an associate professor and director of industrial engineering programs (BSIE & MSIE) and director of a graduate certificate in Lean Six Sigma at A. Leon Linton Department of Mechanical, Robotics, and Industrial Engineering of the Lawrence Technological University (LTU), Southfield, Michigan, USA. He established the

Siemens Electro-Matic Industrial Engineering Lab at LTU. Dr. Ali was the primary author of the 2022 ABET self-study report for the BSIE Program at LTU. He earned a BS in Mechanical Engineering from Khulna University of Engineering and Technology (KUET), Bangladesh, a master's in systems and engineering management from Nanyang Technological University, Singapore, and a Ph.D. in Industrial Engineering from the University of Wisconsin-Milwaukee, USA. Dr. Ali was an Assistant Professor in Industrial Engineering at the University of Puerto Rico - Mayaguez, a Visiting Assistant Professor in Mechanical, Industrial, and Manufacturing Engineering at the University of Toledo, and a Lecturer in Mechanical Engineering at the Bangladesh Institute of Technology, Khulna. He received the Outstanding Professor Award from the Industrial Engineering Department at the University of Puerto Rico - Mayaguez. He has published 75 journal papers and 150 conference papers. Dr. Ali conducted research projects with Chrysler, Ford, DTE Energy, New Center Stamping, Whelan Co., Delphi Automotive System, GE Medical Systems, International Truck and Engine Corporation (ITEC), and Rockwell Automation. His research interests include manufacturing systems, quality, lean manufacturing, Six Sigma, simulation, artificial intelligence, supply chain management, and optimization. He supervised 11 doctoral students in the Doctor of Engineering in Manufacturing Systems (DEMS). He is the Founder and Chief Executive Officer (CEO) of IEOM Society International. Dr. Ali serves as a Conference Co-Chair of the International Conference on Industrial Engineering and Operations Management. Dr. Ali organized IEOM conferences around the globe on six continents including Dhaka, Kuala Lumpur, Istanbul, Bali, Dubai, Orlando, Detroit, Rabat, Bristol, Bogota, Paris, Washington, DC, Lima, Johannesburg, Bangkok, Pilsen, Toronto, Costa Rica, Monterrey, Sao Paulo, Riyadh, Manila, Melbourne, New Delhi, Sydney, Augsburg, Tokyo, and Muscat. He is an associate editor of the IJIEOM. Dr. Ali is a member of IEOM, INFORMS, SME, and IEEE.

**Professor Don Reimer** is the Chief Operating Officer of the IEOM Society International, located in Southfield, Michigan, USA. He is a managing member of The Small Business Strategy Group, LLC, and works as an adjunct professor at Lawrence Technological University. Professor Reimer holds a Bachelor of Science degree in Industrial Management from Lawrence Technological University and a Master of Arts degree in Political Science from the University of Detroit/Mercy. He has been recognized as a professional management consultant with over 45 years of experience in working with closely held businesses. He has taught courses in entrepreneurship, management, corporate entrepreneurship, and innovation for engineers. Professor Reimer served as a member of the Minority Economic Development Committee of New Detroit. He has served as a KEEN Fellow for The Kern Family Foundation. He is a member of the Lawrence Tech Alumni Board of Directors and has been elected a Fellow of the IEOM Society International. Professor Reimer is a faculty advisor of the Student Chapter of the IEOM Society at Lawrence Tech. He visited 17 countries to organize IEOM conferences. Professor Reimer is coordinating IEOM student chapters worldwide.