

# Proposal \_ Special Session

(ICIEA 2026)

**Title:** INDUSTRIAL ENGINEERING IN MEDICINE

**Name(s) of organizer(s):** Dr. Khurshid Alam

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**Brief biography:** Dr. Khurshid Alam earned his PhD in Mechanical Engineering (Biomechanics) from Loughborough University, UK. He is currently an Associate Professor in the Department of Mechanical and Industrial Engineering at Sultan Qaboos University. A Chartered Engineer, Dr. Alam is a member of the Institute of Physics (IOP) and the Institution of Mechanical Engineers (IMechE). He has held teaching and research positions at esteemed institutions such as Loughborough University (UK), the University of Strathclyde (UK), NUST (Pakistan), GIK Institute (Pakistan), and Air University (Pakistan). Dr. Alam has extensive experience in curriculum development and has been actively involved in the accreditation of degree programs in mechanical and industrial engineering. He is presently leading and coordinating the ABET (Accreditation Board for Engineering and Technology, USA) accreditation efforts within his department. Dr. Alam's research interests encompass Applied Mechanics, Biomechanics, Tissue Mechanics, Computational Mechanics, Fluid–Structure Interaction Modeling, Energy Systems, and the design and development of laboratory equipment. He has authored over 70 publications in renowned international journals and conference proceedings.

**Brief description:** By viewing healthcare as an integrated system, industrial engineering helps hospitals and healthcare organizations enhance patient outcomes, safety, efficiency, and sustainability without sacrificing care quality. In medical practice, industrial engineering focuses on creating, evaluating, and enhancing healthcare systems to provide patients with safe, effective, high-quality, and economical care. Process optimization, systems modeling, human factors, operations research, quality engineering, and data analytics are some of the fundamental industrial engineering methods that are applied in clinical and hospital settings.

## Related topics:

- Occupational biomechanics
- Injury prevention
- Ergonomic design of Emergency rooms/places and tools
- Posture analysis and optimization
- Human–machine interaction in medical settings
- Patient flow modeling and simulation
- Capacity planning in healthcare facilities
- Lean healthcare and Six Sigma applications
- Design of assistive devices using ergonomic principles
- Industrial design of medical devices

- Rehabilitation Engineering & Industrial Systems
- Motion capture data analytics for ergonomic assessment
- Machine learning for injury risk prediction
- Quality control of biomedical manufacturing processes
- Reliability engineering of medical devices
- Systems modeling of healthcare delivery
- Industry 4.0 applications in biomedical manufacturing

**Potential participants:**

- Engineers (Mechanical / Industrial / Biomedical / Manufacturing / Systems)
- Medical technicians
- Biomedical industry specialist
- Nursing staff
- Biomedical device industry specialist
- Allied health professionals (physiotherapists, radiologists, lab technicians)
- Rehabilitation specialists
- Data scientists and health informatics specialists
- Policy and strategy managers
- Risk and safety officers
- Healthcare regulators
- Health IT professionals
- Healthcare consultants