

Special session proposal for IJCIEOM 2025 conference SPS15

1. Session title:

Remanufacturing, Circularity, and Lifecycle Management Concerns

2. Session objectives:

The objective of this proposed section is to collect contributions to share knowledge on business models to support integration, identification, application, and mapping of Industry 4.0 technologies to support remanufacturing, lifecycle-based approaches, and refurbishment processes. The session may include modeling techniques, design, control, and simulation of processes in order to overcome the uncertainty in timing and quality of returns, balancing of load, design for reverse services, service oriented-logistics product and materials integration, complexity management, as well as manufacturing strategies for part integration, cost barriers for remanufacturing, customer points for product and market acceptance, and human and robot cooperation. We are interested in approaches integrating both direct and reverse supply chains, necessitating an interdisciplinary perspective that spans from the beginning of life (BOL) to the middle of life (MOL) and end-of-life (EOL) of manufactured products. A key aspect of lifecycle approaches is the design and promotion of products and processes that prioritize sustainability through reusability and reparability, supporting a circular economic model. Remanufacturing plays a pivotal role here, involving the transformation of obsolete products into items that meet "like-new" standards. The session includes but do not limit to:

- Circular Economy and Sustainability
- Ecodesign
- Business models, product specification, and market acceptance for remanufacturing
- for remanufacturing
- Uncertainty in remanufacturing
- Design for disassembly methods
- Robotic disassembly
- Human-related factors in remanufacturing
- Reverse logistic management for remanufacturing
- Inspection/Testing before/after remanufacturing
- Cloud-based strategies for remanufacturing and lifecycle management
- Lifecycle and end-of-life management models and concerns.



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“Redesigning industrial systems towards a Sustainable, Resilient, and Human-Centric future in the digital era”

3. Organizer(s):

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