

Manufacturing and Service Systems in the New Era (Code: 7bw71)

Goal:

The complexity of manufacturing and service systems is embedded through inter-connected components and units and resource-coupled process. Although substantial efforts have been devoted to research and practice of modelling, analysis, design, control, and optimization in manufacturing and service systems, at the advent of Industry 4.0 era, manufacturers gradually evolve their production to embrace human-in-the-loop, resilience, and sustainability. Manufacturing sector faces intriguing opportunities as they implement and promote Industry 4.0 technologies. These products then become carriers of communication between manufacturers and customers. Consequently, manufacturers earn revenue not only for sales of their products, but also for the service and utility delivered by those products. This special session focuses on the modeling, analysis, optimization, and control of manufacturing and service systems. The advancement of new information technologies, such as internet of things, big data, cloud and edge computing, 5G enabled manufacturing, digital twin, manufacturing servitization, and artificial intelligence, which enable more powerful model-based and data-driven methods. And it has generated numerous opportunities to tackle the intractable issues. Submissions of qualitative and quantitative results from researchers and practitioners are strongly encouraged.

Topics:

The topics include, but are not limited to:

- Flexible manufacturing and service systems
- Energy efficient and environment friendly manufacturing and service systems
- Collaborative robots in manufacturing systems
- Smart logistics management in manufacturing and service systems
- Human-machine interaction for production optimization
- Industry 4.0, IoT, cloud & AI for smart production and service
- Complex system modeling and design optimization
- Performance evaluation and continuous improvement
- Real-time control and scheduling
- Meta-verse in manufacturing and services
- Resilience in manufacturing
- Smart sensing and control in manufacturing systems
- Real-time control of production and service process
- Dynamic maintenance decision making
- Data-driven modeling, monitoring and control of production and service process
- Service-oriented smart manufacturing and Robot as a Service (RaaS)
- AI-based design and optimization in production and service system
- Digital-twin technology and service-oriented manufacturing technology
- Advanced data analytics for manufacturing and service systems
- Applications and case studies

Contact the lead organizer: ,

Professor Chao-Bo Yan
Xi'an Jiaotong University
E-mail: chaoboyan@mail.xjtu.edu.cn
Phone: +86 – 17791257080