



Session title: Sustainability issues in intelligent manufacturing systems

Organisers (max. 4):

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Short presentation:

On the one side, sustainability in manufacturing systems is an urgent requirement for today's manufacturing companies due to several established and emerging causes: environmental concerns, diminishing non-renewable resources, stricter legislation and inflated energy costs, increasing consumer preference for environmentally friendly products, etc. One of the key questions to answer in the field of Sustainable Production and Manufacturing is: What approaches should/could be used to transform production processes to be more sustainable? It has been stated that in order to foster sustainability in production the whole life cycle of manufacturing systems must be taken into account, considering its different layers in a holistic way. From systems' conception throughout implementation, until maintenance the system developer must take into account sustainability issues. Nevertheless, there is a lack of sustainability considerations in the state-of-the-art design methods and models for manufacturing and especially concerning the management of operations (typically, planning and scheduling). It is worth to mention the importance of this subject since sustainability in manufacturing is a major concern for national and international regulations on environmental protection. For example, the EU is developing a series of regulations and guidelines on life cycle energy/carbon-related management for product development and manufacturing enterprises to embrace "Competitive Sustainable Development" and shoulder "Extended Producer Responsibilities (EPR)". USA, Canada, China and Japan are also fostering initiatives on sustainable manufacturing as one of the key issues for the future of manufacturing field.

On the other side, the Intelligent Manufacturing System community has been studying for years the application of holonic and multi-agent based approaches, and at a more global level, intelligent computational technics, to design more adaptive, learning, robust and agile manufacturing control systems. Meanwhile, one can face that few attention has been paid to the integration of sustainability in the design and modelling of these IMS-based systems.

As a consequence, the goal of this special session is to foster researchers and practitioners to discuss their theoretical and practical works in the subject in order to build a research network community dealing with this urgent requirement from the society.

Case studies, theoretical models, design methodologies, highly prospective discussions and literature reviews are especially welcome.



Applications may concern short-term manufacturing processes (scheduling, monitoring, MES...) as well as mid-term manufacturing and associated processes (planning, ERP, maintenance, supply chain, and logistics). Societal and environmental aspects of sustainability principles are especially encouraged.

Keywords: Industrial Sustainability, Intelligent Manufacturing, Eco design, Sustainable Supply Chains, Green Manufacturing, Efficient Manufacturing Operations, Planning, Logistics.

Important dates:

- Proposals of Special Sessions: April 30
- Full paper submission: June 20
- Notification of acceptance: July 15
- Final, camera-ready paper submission: August 12
- Early registration and fee payment: August 31