



POLITECNICO
MILANO 1863

DIPARTIMENTO DI
INGEGNERIA GESTIONALE

DIG PhD scholarship

Title	Advanced design and planning for reconfiguration of production systems
Theme	<p>Rapidly and unpredictable changes of market requirements, requests for new product families and shortening of product lifecycles, as well as the challenging needs for responsiveness, are leading to a transformation of the today's production concepts. The technological development is also providing capabilities built upon the potentials of digital transformation of industrial processes resulting from a blend of concepts and technologies within the Industry 4.0 umbrella. Overall, this is promising a low cost and effort for reconfiguration of production systems, leading to high potentials for convertible and scalable production capacity. Advanced management is required to this end, facilitating a responsive manufacturing and rapid reconfiguration of production systems with cost-effectiveness.</p> <p>The study may consider different related issues, as: i) new technological concepts (Cyber-Physical Systems, Internet of Things / Internet of Services, ...) facilitating a decentralized decision-making within the factory; ii) a seamless integration of product-process-production system engineering and production management, as a basis to build dynamic reconfiguration capabilities; iii) new production planning and control approaches, using the digital upgrade of production and logistics equipment, to enhance the coordination of required resources in the factory; iii) the reconfiguration not only of one production site but also among different sites, with a rapid planning of small production units to adjust to the market dynamics.</p>
DIG professors involved	Luca Fumagalli, Marco Macchi, Alessandro Pozzetti, Marco Taisch, Sergio Terzi
International collaborations	<i>Klaus-Dieter Thoben (Universität Bremen)</i> <i>Dimitris Kiritsis (École Polytechnique Fédérale de Lausanne)</i> <i>Jose Martinez Lastra (Tampere University)</i>