Aims of the Special Issue:

Industrial engineers have been contributing knowledge of the use of information technology and electronics for the automation of system and machine controls and operations decision excellence during the third industrial evolution, i.e. Industry 3.0. With the emergence of smarter factories and even more intelligent manufacturing owing to higher technology advancement, there is a compelling trend to extend the industrial engineering scope to integrate with advanced decision technologies for higher decision quality. In the era toward the fourth industrial evolution, i.e. Industry 4.0, more attention has been drawn to develop Cyber-Physical Systems, the Internet of Things, and the Internet of Services. This special issue of the *International Journal of Industrial Engineering: Theory, Applications and Practice* (IJIETAP) aims to present research regarding industrial engineers’ roles to empower Industry 4.0 including all design principles: interoperability, virtualization, decentralization, real-time capability, service orientation, and modularity.

Scope of the Special Issue:

A main source of the manuscripts for this special issue will be papers invited from those high quality theoretical and empirical research papers presented in the 2016 *International Symposium on Semiconductor Manufacturing Intelligence* (ISMI2016), held at National Tsing Hua University, Hsinchu, Taiwan, from August 7–10, 2016. Other papers describing scientific technologies and methodologies that improve the quality of business and operations decisions toward Industry 4.0 are also welcome and can be directly submitted for regular review and potential publication in this special issue. Submissions of comprehensive reviews and tutorial surveys from experts in academia and the semiconductor industry worldwide are also welcome. Topics to be covered include, but are not limited to:

- Advanced process control (APC)
- Agent based intelligent systems
- Algorithms for planning, scheduling and coordination
- Automated material handling systems (AMHS)
- Automation in 300mm/450mm wafer generations
- Benchmark studies, case studies and data sets
- Big data and statistical applications
- Cyber-Physical Systems (CPS)
- Data mining for yield and production improvement
- Decision support systems (DSS)
- Decision technologies for equipment automation
- Demand planning
- Design concepts for equipment and automation
Submission Guidelines:

All papers must be original and not published, submitted and/or currently under review elsewhere. All manuscripts should be submitted through the IJIETAP online system at http://journals.sfu.ca/ijietap/index.php/ijie/about/submissions#onlineSubmissions. Please choose “ISMII2016” when selecting the Journal Section. In preparing their manuscript, authors are asked to closely follow the online “Author Guidelines”. Submissions will be refereed according to the IJIETAP standards and requirements. Each paper submitted will be subject to a blind peer-review by at least two referees, in accordance with usual IJIETAP procedures. If accepted, a Word file of the final paper must be emailed to the corresponding guest editor. Papers accepted will transfer their copyright to the IJIETAP publisher.

Publication Schedule (tentative):

- Deadline for manuscript submission: 2016/11/30
- Review report: 2017/01/31
- Revised paper submission deadline: 2017/04/30
- Notification of final acceptance: 2017/06/30
- Approximation publication date: 2017/12

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