Industry 4.0 Implications for Industries-Academia in the Indian Context

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Abstract

Globally developed countries have taken lead in exploring, implementing, and enjoying the benefits of Industry 4.0 through synchronization of various stake holders such as government, industries and academia. Industry 4.0 technologies are applied in creation of smart cities, smart factories, smart machines, smart products, smart services, predictive maintenance, unmanned vehicles, drones, smart warehousing, collaborative robots etc. The use of Industry 4.0 technologies facilitates fast and better living, efficient services, self-adjusting machines, high level automation in the industries with or without human intervention especially in hazardous environments. Fourth Industrial revolution has a potential to transform whole manufacturing system into smart manufacturing system in industries through the integration of Industry 4.0 technologies such as Big Data Analytics, Artificial Intelligence (AI), Cyber Security, Cloud Computing, Collaborative Robots, Additive manufacturing, Augmented reality, Cyber Physical system (CPS), smart sensors etc. This paper elaborates on an overview of Industry 4.0 technologies, challenges and their penetration in the industries through collaborative efforts of industry and academia. Further, highlighted the preparation strategies of the academia for smooth adoption of latest technologies by Indian industries through the trained passing out engineers and supporting infrastructure.

Keywords
Industry 4.0, IoT, Academia, Smart manufacturing, and industry revolutions

Biographies
Dr. Balbir Singh is working as an Associate Professor in School of Mechanical Engineering at Shri Mata Vaishno Devi University, Kakryal, J&K, India. He has 21 years of teaching experience. He has served 16 years in Indian Air Force. He is graduate in Mechanical Engineering from IE(I) and M.Tech. in Production from GNE Ludhiana, Punjab, India. He was awarded Ph.D. in Non-conventional Machining Method from NIT Kurukshetra, Haryana, India. His areas of research are non-conventional machining method, maintenance, and quality control, industrial

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Iqbal Ahmed Khan did his Ph.D. in Mechanical Engineering in 2007, from Jamia Millia Islamia, New Delhi. He did M. Tech. in (Industrial and Production Engineering) in 2000, from Aligarh Muslim University, Aligarh, U.P., and B. E. (Mechanical Engineering) in 1995, from Jamia Millia Islamia, New Delhi.He has 26 years of teaching and administrative experience in different reputed Institutes such as Galgotias University, Krishna Engineering College, Greater Noida Institute of Technology, Manav Rachna College of Engineering, etc. Presently he is working as a Professor & Head in the Department of Mechanical Engineering, Greater Noida Institute of Technology, Greater Noida, Uttar Pradesh His major research interest includes Industrial & Production Engineering specifically evaluating and improving industrial workers' performance, evaluating and improving human working conditions, ergonomic design of tools and equipment, and Human- Computer-Interaction (Environmental Ergonomics). He had published more than 34 research papers in International and National Journals, written a book, and also guided the students in projects and dissertations at UG and PG levels.

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