

Educating Tomorrow's Engineers

by

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Abstract

In this paper, various trends and challenges facing the world are discussed. These include urbanization and inequality in wealth distribution, clean air and clean water, food distribution, energy, global warming and climate change, old and new diseases and aging population, as well as physical-space and cyber-space security. The new Digital Revolution causes anxiety in the industry, academia and society as we are uncertain of the future of our jobs and what new disruptive technologies are coming. To tackle the challenges, we require new ideas and inventions which will only be possible with excellent knowledge workers. A brand new set of technology breakthrough will require different skill sets, particularly on STEM skill sets, in the engineering workforce (engineer, engineering technologist and engineering technician). A good engineering team is considered as the driver for the success of any nation in this globalized world. The paper also touches on the challenges faced by future engineers vis-à-vis globalization and mobility of engineers; and what skills young engineering graduates should acquire to face the challenges. In the opinion of the author, what is important now is for the educators to train future graduates who can embrace life-long learning and professional skills with strong basic fundamentals of natural sciences and engineering, and who are ready-to-evolve rather than graduates who are just ready-to-market as many of the graduates will be entering a whole new and unknown sea of employment. Values and ethics should also not be forgotten in educating future graduates. In particular, three IC's are advocated for our future graduates: Integrity & Competence, Integration & Communication, and Internationalization & Cooperation.