

Industry 4.0 and the Impact on Education

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We are currently witnessing a significant transformation in the development of education. For a long time science and the daily life of the people happened more or less in parallel. Today we have a close interweaving. By its very nature engineering is bound up with society and human behavior. More or less every product, construction or service used by modern society will have been influenced by engineering. Nowadays the field of engineering covers near all areas of society.

There are at least three essential and challenging elements of the necessary transformation process in education that have to be tackled especially in engineering education:

- the impact of globalization on all areas of human life,
- the exponential acceleration of the developments in technology as well as of the global markets and the necessity of flexibility and agility, and
- the enormous (and accelerated) growth of the area of engineering.

To face these current real-world challenges, higher engineering education has to find innovative ways to quickly respond to the new needs of engineering education.

This means it is necessary to improve the agility of engineering education in the future. Approaches in this direction are the internationalization of educational processes, the creation of virtual educational units, which can be flexible adapted to new requirements in Engineering Education.

From this point of view I see especially for Engineering Education the following conclusions:

1. The requirements for EE coming from emerging technologies as for example online engineering, industry 4.0, additive technologies, and many others, have to be more broad discussed. The educational concepts from the past have to be checked and adapted in a disruptive manner!
2. The new and future developments in engineering and the resulting new needs for EE require a new quality in the cooperation between all stakeholders in Education (state and private universities/colleges, industry, governmental and international organizations).
3. As global player, we have a special responsibility for the exchange of the needs, experiences, best practices, etc. in Engineering Education between the institutions, regions and continents. In addition, due to the global dimension of engineering tasks we are challenged to increase the support of our colleagues in developing countries, but on the other hand to learn about their needs and their own experiences.