Siemens Automation Cooperates with Education

Key note speech to the WFCP, Oct 2014, Beijing
Siemens is a committed corporate citizen making positive & lasting contribution to the Chinese society

Corporate Citizenship

Sustainable Communities

- Education & Science
- Social
- Environment

Meeting the demand of business in ecologically and socially sound manner

Supporting technical education and research cooperation

Long-term support for disaster victims

Enhancing living conditions

Fostering sustainable behavior
Our education cooperation originated from Siemens’ deep engagement in the German education system.
In China, Siemens is working on 5 key topics under the MoU with Ministry of Education

Corporation key topics

- Teachers’ training
  - ~7-8 trainings for teachers each year, coverage ~300 teachers
  - Oversea training in top FH school in Germany

- Education resource
  - Continuously sponsor school teachers for text book development
  - 20 practice text books development in 2014 together with MoE

- Education philosophy
  - Research program with MoE for Engineer capability model
  - Go-PLM program: training / certificate and internship

- Practical environment
  - ~160 labs established together with technical schools / universities

- Engineering contest
  - Sponsored 8 national automation contests since 2006

On February 16, 2011, Siemens signs a Memorandum on education cooperation with Ministry of Education of the People's Republic of China

Siemens to systematically support education partners in various fields to contribute to the education reform in China
Together with technical schools / universities, we develop practical labs at three levels

<table>
<thead>
<tr>
<th>Lab level</th>
<th>Function</th>
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<tbody>
<tr>
<td>Comprehensive</td>
<td>Digital factory: Comprehensive analysis and solve problem to use our PLM portfolio</td>
</tr>
<tr>
<td>Capability</td>
<td>Siemens contest device: Use our product to solve real industry questions</td>
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<tr>
<td>Skill</td>
<td>Siemens product display rack: Master basic knowledge and skill to use Siemens product</td>
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<td></td>
<td>Simulation device: Use our product</td>
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<td></td>
<td>Didactical OEM device: Use our product</td>
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<td>Industry environment: Use our product</td>
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By 2014, ~ 160 Siemens labs established in universities and vocational schools
To cultivate engineering talents we jointly sponsor the National Undergraduates Industry Automation Contest

“The Siemens Cup” National Undergraduates Industry Automation Contest

The 8th national contest held successfully in China University of Petroleum Qingdao Campus on August 25, 2014.

800 teams from nearly 200 colleges and universities all over China participated, with total 5000 attendees

Contest themes

- R&D engineer 4.0
- Design engineer 4.0
- Application engineer 4.0

Source: Siemens Ltd. China
Industry 4.0 is a ongoing revolution world-wide

**From Industry 1.0 to Industry 4.0**

**First Industrial Revolution**
- based on the introduction of mechanical production equipment driven by water and steam power
- First mechanical loom, 1784

**Second Industrial Revolution**
- based on mass production achieved by division of labor concept and the use of electrical energy
- First conveyor belt, Cincinnati slaughterhouse, 1870

**Third Industrial Revolution**
- based on the use of electronics and IT to further automate production
- First programmable logic controller (PLC) Modicon 084, 1969

**Fourth Industrial Revolution**
- based on the use of cyber-physical systems

**Time**

1800 | 1900 | 2000

Source: Siemens Ltd. China

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Industry 4.0: Algorithmicized "production chess" within cyber-physical systems

Vision for Industry 4.0

- The product to be manufactured contains all necessary information on its production requirements
- Self-organization of integrated production installations considering the entire value chain
- Flexible decision on production process on the basis of the current situation

Decentral cyber-physical systems (CPS) interact via embedded internet-based technologies
Human beings remain essential …

Humans conceptualize and design the product...

...determine the production rules and parameters...

... the rest can be executed by automation...

... as creative planners, controllers and decision-makers
Thank you!

Siemens is fully committed to contribute to technical education together with all of our education partners.