SAE INTERNATIONAL

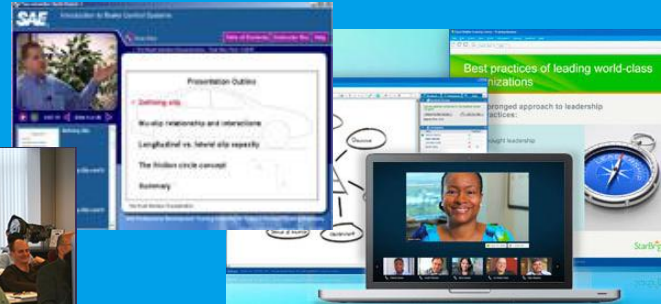# INDUSTRY NEEDS AND IMPACT ON EDUCATION

DMA Conference

October 14, 2016

PD LEARNING FORMATS

- Classroom Instructor-Led—Seminars, Academies
- Online – live Web Seminars, e-Roundtables
- On Demand Courses

Serving 9000+ learners in 2016

Hiring criteria ideally include technical acumen, people skills and experience to function well in an organization

Hard Skills

- Engineering fundamentals
- Math and applied science
- Problem-solving capability
- Mechanical systems and components
- Logic - especially for software engineers

Soft Skills

- Teamwork
- Strong communication
- Personality fits company
- Extroversion & comfort working with diverse groups
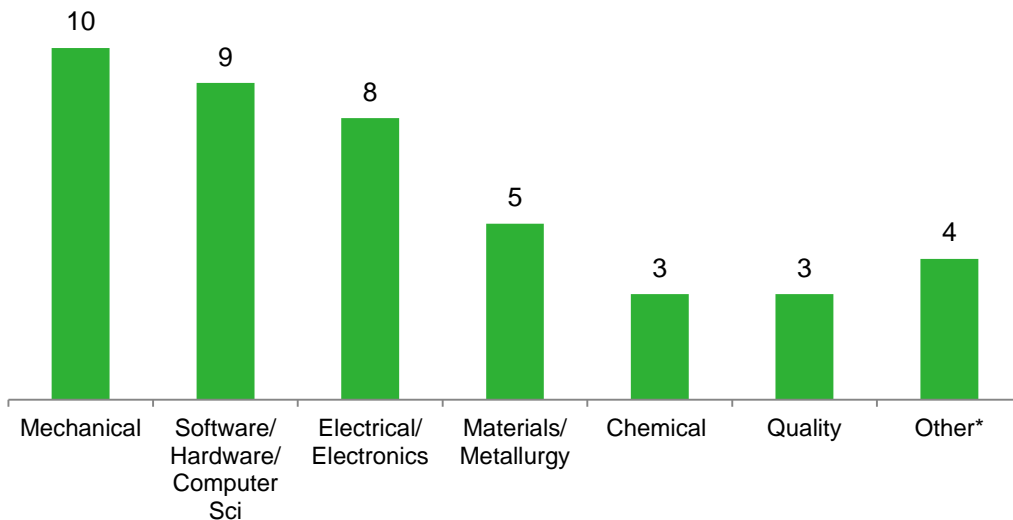- Learning from failure
- Self-directedness
- Ability to lead

Experience

- Involvement in an actual design club
- 1/3 say they seek out SAE CDS participants
- Co-op or internship
- Hands-on, building what they design
- Project management

The most sought-after engineers are in Mechanical, Electrical and Software disciplines

Engineering talent sought by companies

Discipline	Count
Mechanical	10
Software/Hardware/Computer Sci	9
Electrical/Electronics	8
Materials/Metallurgy	5
Chemical	3
Quality	3
Other*	4

> *We don't get enough qualified candidates. That is correct. **The one area where we struggle the most is software engineering.** And for software we typically look for embedded software experience and knowledge. That is one very particular area where we are struggling the most but I think that we're not the only ones.*

New hires need more practical hands-on experience and stronger soft skills

Mechanical Aptitude (hands-on experience)

- Very few **work on their cars** or family farm equipment
- Most gain experience from **using electronics**
- **Little curiosity/ interest** in building what they create

Soft Skills

- More **cross-functional empathy** (lose their arrogance)
- Good **communication** skills, oral and presentation skills
- Strong command of **English** - verbal and written
- **Technical writing, email etiquette** and **computer fluency**
- Working well in teams; social/professional **diplomacy**
- **Adaptable** to the work environment
- **More application** of problem-solving, statistics
- **Negotiation**
- **Creativity** (particularly among Chinese applicants)

"So you've got these people with manufacturing ability, but they've never turned a wrench. That's a challenge."

Industry Needs and Impact on Education

Considerations for Education & Training Organizations

- Project-based and hands-on learning
- Value of co-ops and internships
- Project management—in Universities, programs like Formula SAE, Eco-car, etc.
- Teaming
- Communication skills
  - Presentations
  - Technical writing
  - Email etiquette
- Hot industry technologies--Cyber security basics, connected/autonomous vehicle technology, light-weighting, embedded software systems, etc.

Industry Needs and Impact on Education

Considerations for Education & Training

- Companies demanding more from training spend
- On-demand eLearning more acceptable—for high quality, engaging eLearning at reasonable cost
- Competency assessment and education/training ideally tied to competencies
- Gaming WILL become more and more common
- Industry advisory boards may give way to Employer-driven Collaboratives (U.S. Chamber of Commerce Foundation, *thetalentsupplychain.org)*

Discussion?

http://training.sae.org/

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