

Desired Attributes of a Global Engineer

**ASEE CORPORATE MEMBER
COUNCIL**

Lynn Brown, Co-Chairperson

Special Interest Group:

International Engineering Education

April 13, 2010



ASEE CMC SIG for International Engineering Education

Mission

Foster, encourage and support the interests of the ASEE Corporate Members in establishing and promoting high-quality engineering education around the world to assure a global supply of well-prepared engineering graduates. The International SIG will work to enhance the ability of engineering faculty, students and practitioners to understand the various cultures of the world and worked effectively within them. It will help to connect engineering graduates with CMC members –international corporations with a pressing need for well-trained engineers able to work in a global environment.

Initial Initiative

Develop and present an assessment of the skills and experiences required by engineering graduates to work effectively in a global environment with the goal of enhancing the employability of engineering graduates and increasing the international competitiveness of ASEE's academic members.

4/21/2010



ASEE CMC SIG for International Engineering Education

Members

- **Lynn Brown – The Boeing Company (Co-Chair)**
- **Alan Jacobs – Quanser (Co-Chair)**
- **Catherine Didion – National Academy of Engineering**
- **Pat Fox – Indiana University-Purdue University**
- **Letha Hammon – DuPont**
- **Hans Hoyer – ASEE**
- **Pete Janzow – CMC Chair**
- **Dan Sayre – John Wiley & Sons**

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Desired Attributes of a Global Engineer

A Good Understanding of Engineering Science Fundamental

- Mathematics (including Statistics)
- Physical and Life Sciences
- Political and Socio-Economic Sciences
- Information Technology – Digital Competency

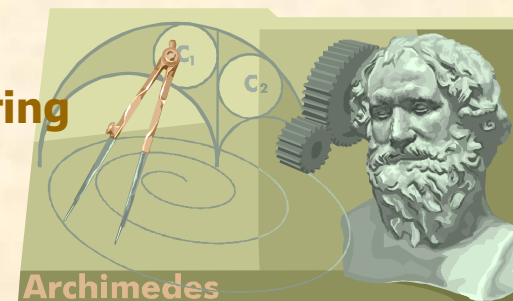
A Good Understanding of Engineering

- Understanding Design and Product Processes
- Understanding of Product Life Cycle Development
- Effective Teamwork/Common Goals
- Possess a Multi-Disciplinary, System Perspective
- Maintain Focus with multiple projects

A Basic Understanding of the Context in which Engineering is practiced

- Economics/Finances of Projects
- Basic Supplier Management Principles
- Customer and Societal Emotions and Needs
- Cultures, Languages, and Business Norms
- Societal, Economic and Environmental Impacts of Engineering Decisions
- An International/Global Perspective

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Desired Attributes of a Global Engineer

Communication

- Written (memos, reports, email, letters, etc.)
- Verbal (technical and non-technical presentations plus an effective “elevator” speech)
- Foreign language – Technically fluent in at least two languages acknowledging English is considered a key global language
- Graphics (design drawings, charts & graphs, presentation, and basic brochure design)
- Digital competency (privacy, security, ethics, critical sensitivity, content analysis)
- Competency at Internet collaboration and communication tools (web based meeting tools; team rooms; teleconferencing; file sharing; emailing; etc.)
- Listening

A Profound Understanding and Commitment to Teamwork

- Active and effective participation in team efforts
- A willingness to respect the opinion of others and support team decisions

Leadership

- Displays an acceptable personal image and projects a positive personal attitude
- Treats people with fairness, trust and respect
- Respect for diversity – Demonstrates courtesy and respect, eager to help others

1/23/2010



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Desired Attributes of a Global Engineer

Flexibility

- Self-confidence to adapt to rapid and continuous change
- Thinks critically, creatively, independently and cooperatively

A Curiosity and Desire to Learn – For Life (Show Initiative, Inquire & Learn

Curiosity and a Desire to Learn – Seeking Advice and Forming Daily Questions to Discover New Insights

A Commitment to Quality, Timeliness, and Continuous Improvement

- Understand basic project and risk management and continuous improvement Concepts (like LEAN+)

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NEXT STEPS: ASEE - SIG Desired Attributes of a Global Engineer Validation

Objectives: To: validate the block points in a person's education: Desired skills for a student (Survey)

- 1) when entering a university with a major in engineering
- 2) when graduating from a University and
- 3) To acquire in their first few years as an engineering professional.

Examples of Potential Audience:

- Academic Administrators/ Faculty Members – College
- Academic Researchers/Engineer/Scientist
- Professional Organizations/Societies
- Student -- College
- Industry - College Relations Professional
- Industry - in management
- Industry – practicing engineer, 10+ years of experience
- Industry -- practicing engineer, new grad



Feedback

- **Once the Desire Attributes of a Global Engineer are validated and published, how would you see these being used?**
 - By Academia
 - By students
 - By Corporations
 - Others?

