

CELEBRATING AWESOME!

Ahmed Nauman, PhD

Outline

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- Engineers Week
- Education
- Engineering and Society
- Celebrating Engineering

Engineers Week

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□ February 19-25, 2023



Why Celebrate?

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- The world is built by Engineers



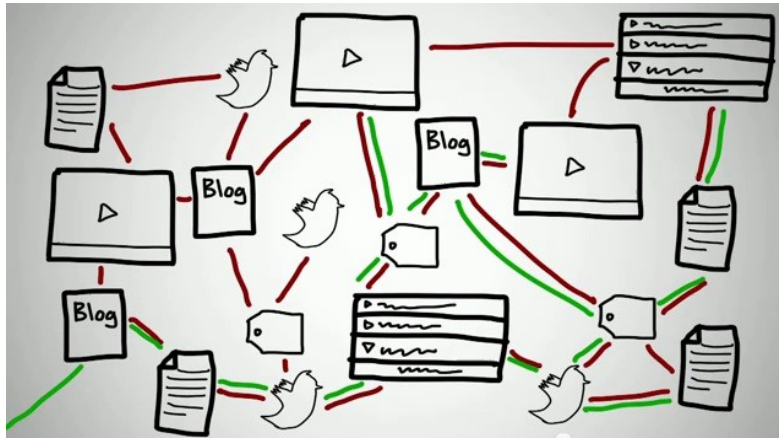
Education

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Current Trends in Education

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- ❑ Wide-spread availability of free learning resources
- ❑ Packaging of credits from different sources
- ❑ Certificates
- ❑ Customized and adaptive learning
- ❑ Confounding of education and training

Education

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- Education IS NOT just:



- Training
 - ▣ Familiarization with specific tools, mechanisms, procedures
- Learning
 - ▣ Gaining information about topics

Education

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□ Education IS:



- A systematic introduction to multiple bodies of knowledge
- An opportunity to synthesize learning from multiple disciplines
- An opportunity to have one's understanding evaluated

Education

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- Education is:

An opportunity to build one's self!



Engineering and Careers

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- Demand is for expertise NOT narrowness
- Recasting the Engineer – more than technical skills



Well-Educated Engineering Graduates

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- Able to think critically
- Able to think systemically
- Professionally skilled
- Technically competent



Industry and Academia

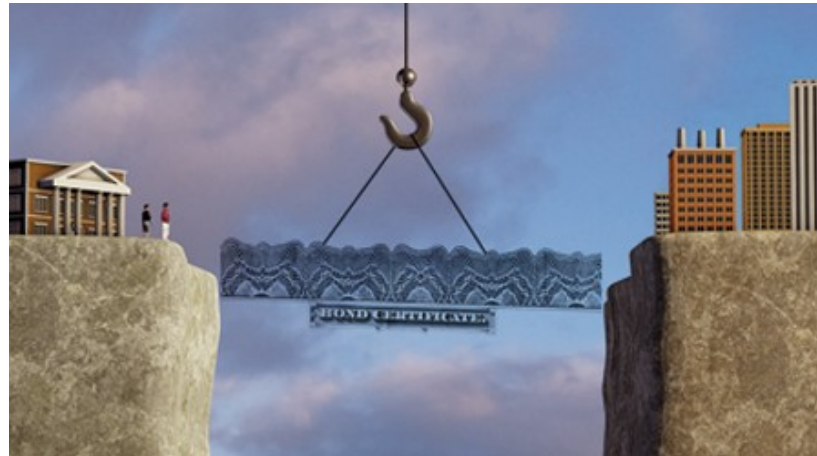
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Collaboration

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- Educational institutions prepare the workforce you hire
- Industry experts often return to educational institutions to teach or lead
- Regular communications between companies and educational institutions benefit both



Understanding Needs

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- Considerations for Academia and Industry:
 - ▣ Depth of preparation in foundational and industry-specific knowledge
 - ▣ Balancing knowledge and skills
 - ▣ Technical and professional competence
 - ▣ Learning how to learn



Creating Relationships

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- How can companies begin creating relationships with educational institutions?



Creating Relationships

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- Alignment between an educational institution's capability and the needs of an industry partner



Creating Relationships

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- There are multiple ways of starting to work with colleges and universities



Creating Relationships

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- Contact the institution's leadership and express your interest



Creating Relationships

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- Hire graduates from that institution on a regular basis



Creating Relationships

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- Inquire if you can serve on an educational institution's Advisory Committees
 - ▣ An institution may have multiple advisory committees which operate at different levels and serve different units of an institution



Creating Relationships

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- Select people to represent your company who:
 - ▣ provide perspectives from several scopes/levels within your company
 - ▣ are knowledgeable about practices within your industry
 - ▣ can describe trends and developments within your industry as a whole



Creating Relationships

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- Describe what competencies you look for in the people you hire
 - ▣ for entry-level and mid-level jobs
 - ▣ for career progression that will take them to more senior-level jobs



Creating Relationships

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- Express requirements for the people you would like to hire
 - ▣ in terms of what you need them to do for you
 - ▣ NOT in terms of what they should be taught in school



Creating Relationships

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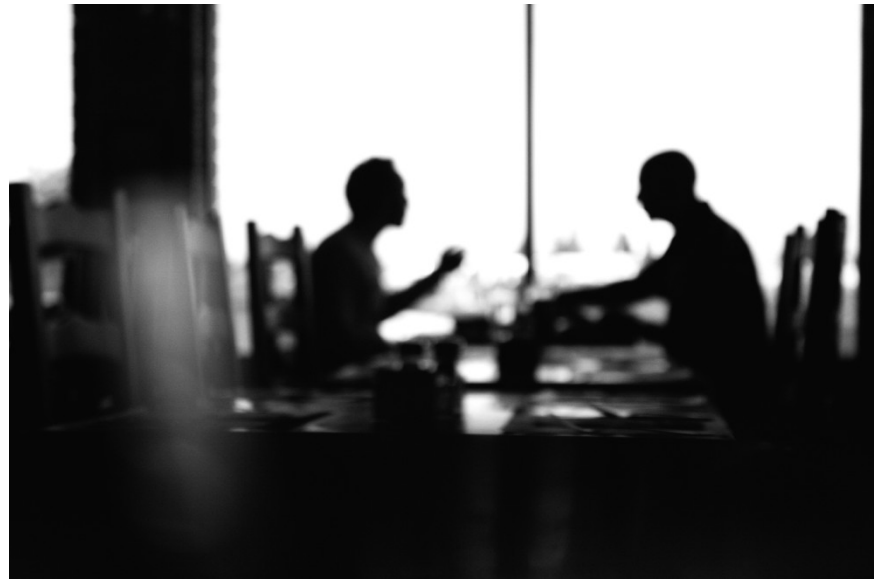
- Describe your current needs and what you expect your needs to be 5-10 years hence



Sustaining Relationships

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- Regular/frequent conversations on a 1-1 level with the leadership and faculty within an institution are as valuable as formal group meetings once or twice a year



Sustaining Relationships

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- Visit onsite or online campuses of an institution and engage with students
 - ▣ about developments within your industry
 - ▣ about what you look for in employees



Sustaining Relationships

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- Invite students to tour your plants



Sustaining Relationships

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- Support student clubs/activities with mentoring and donations



Sustaining Relationships

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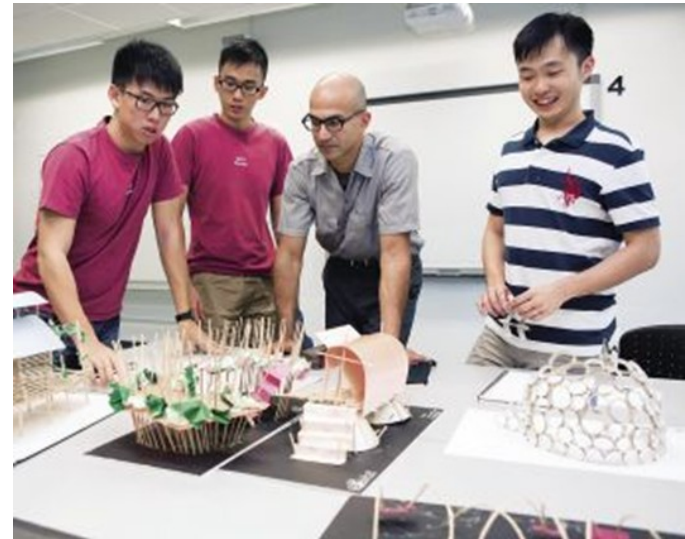
- Offer regular paid internships and coop opportunities to students



Sustaining Relationships

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- Propose project activities where students work on your projects but can also use them to satisfy academic requirements



Sustaining Relationships

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- Send your employees back to the institution you are working with for continuing education and more advanced degrees



Sustaining Relationships

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- Be a partner and cultivate a long-term relationship



Engineering and Society

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Engineering and Society

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- Critical and systemic thinking
- The practice of Engineering
 - ▣ Providing systemic solutions
 - ▣ Bringing positive societal change
 - ▣ Engineering the world



Engineering and Ethics

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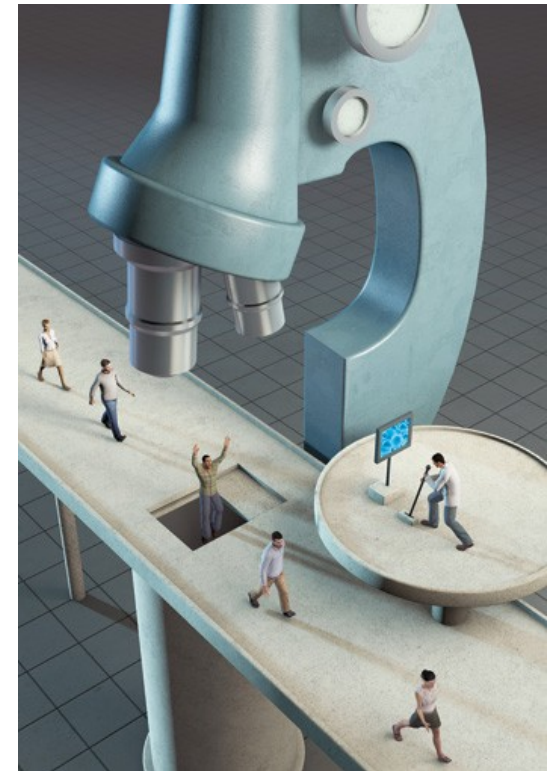
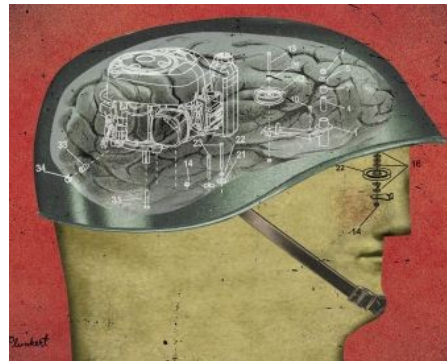


- With the power to build comes the responsibility to build considerately

Engineering and Ethics

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- Deployment of technologies have consequences
- Assess projects for both technical and ethical impact



Engineering and Ethics

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- How are costs of externalities estimated and accounted for?
- Are Engineers able to bring these considerations into business decisions?
- Who will protect Engineers when they challenge unethical behavior?



Celebrating Engineering

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Celebrating Engineering

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- Development has been a consequence of technology
- Holistic Engineering thinking is needed for sustainable development



Celebrating Engineering

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“Scientists discover the world that exists;
Engineers create the world that never was.”



Theodore Von Karman

Celebrating Engineering

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- Engineering is only as good as the Engineers who practice it
- The world has been and will continue to be built by Engineers
- That's Awesome!



Thank You!

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The majority of the images in this presentation came from
chronicle.com and discovere.org.