



# Ethics in *International* Engineering Education

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# ABET Core Purpose

With ABET accreditation, students, employers, and the society we serve can be ***confident*** that a program meets the quality standards that produce graduates prepared to enter a global workforce

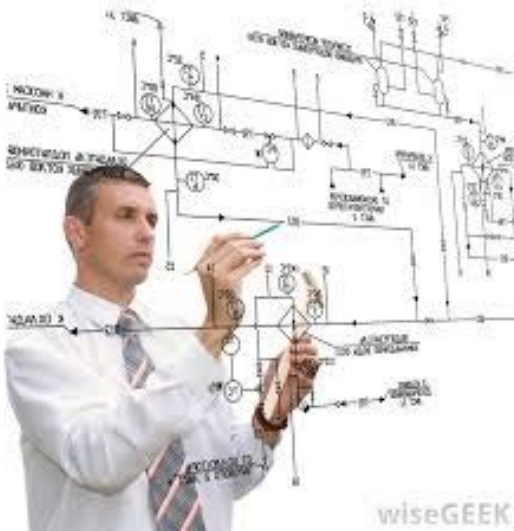


# What's the impact of unethical behavior in higher education ?

- **Reduces/destroys confidence**
- Negative effect on quality
- Economic impact
- Diversion of resources
- Public safety
- Impact on students



# Ethics



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Joe Palca  
NPR

Mark Edwards  
Virginia Tech

Arvind Thiruvengadam  
West Virginia Univ

Steve Cramer  
Univ Wisconsin



# Graduates in a Global Economy





# Global Technical Professionals

- Future challenges
  - Large scale, complex systems
  - Multidisciplinary “systems” approach
  - **Globalization**
  - Language, history, cultural sensitivity
  - **Greater interaction with general public**
  - **Impact in a global context, scale**
- International Engineering Alliance (IEA)
  - Mutual Recognition Agreements
  - Graduate Attributes



# IEA Washington Accord



## Global Graduate Attributes

- Engineering Knowledge
- Problem Analysis
- **Design/Development of Solutions**
- Investigation & Experimentation
- Modern Tool Usage
- **The Engineer and Society**
- **Environment and Sustainability**
- **Ethics**
- Individual and **Teamwork**
- **Communication**
- **Project Management and Finance**
- Lifelong Learning



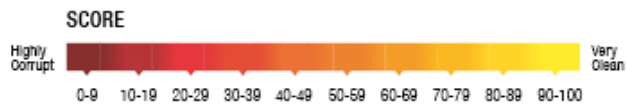
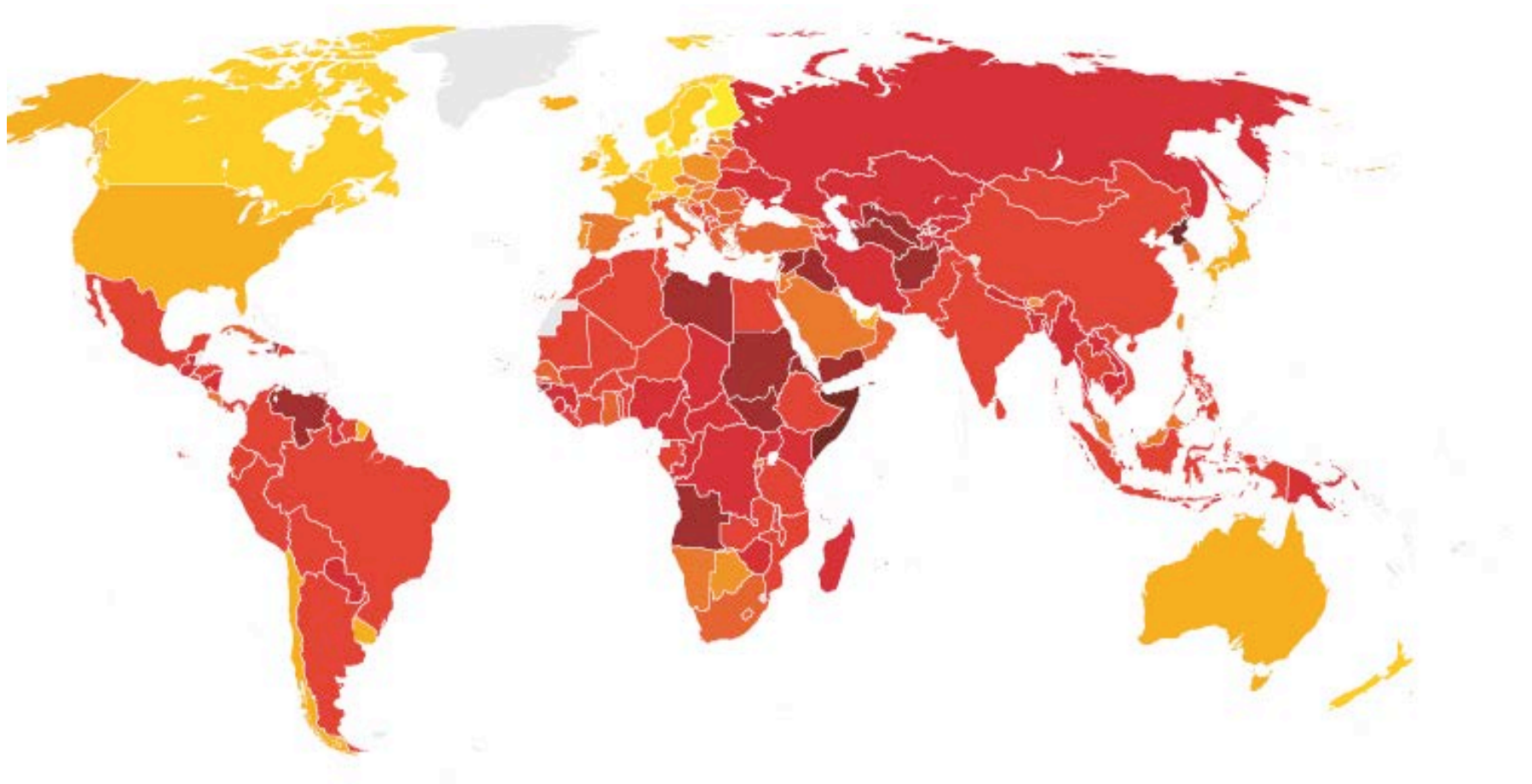
# **Corruption in Higher Education**

# *Is Ethical Behavior viewed in the same way around the world?*

- Ethics
  - Moral principles that govern a person's behavior;
  - Right and wrong conduct
- Integrity
  - The quality of being honest, fair and having strong moral principles;
  - Personal choice to uphold oneself to consistent moral and ethical standards
  - *“Doing the right thing when no one is watching”*



# *Corruption Index*



#cpi2015

[www.transparency.org/cpi](http://www.transparency.org/cpi)

# *Corruption in Higher Education*

- Global Corruption Report: Education
  - *Transparency International*
- The Scourge of Fraud and Corruption in Higher Education
  - *International Higher Education*, Winter 2016
- Higher Education: A Hotbed of Corruption?
  - *Inside Higher Ed*, 26 Jul 2015
- Corruption at Universities is a Common Disease for ...
  - *Harvard Center for Ethics*, 17 Jun 2014
- Corruption in Universities: a blueprint for reform
  - *Times Higher Education*, 21 Nov 2013
- Corruption is Eroding Higher Education's Benefits
  - *University World News*, 5 Oct 2013
- GLOBAL: The Corruption of Ethics in Higher Education
  - *University World News*, 6 Feb 2011
- University Inc.: The Corporate Corruption of Higher Education
  - *Jennifer Washburn*, 2006

# Corruption in Higher Education

- Ghost Schools
- Financial fraud
- Bribes
  - Admission
  - Grades
  - Accreditation
- Diploma Mills
- Accreditation Mills
- Nepotism
- Misleading/untruthful promises

# Corruption in education is universal, but types are different

Generally ....

- In the West
  - Plagiarism, cheating on examinations, research misconduct, etc.
  - Commercialism of higher education
- Elsewhere
  - Primarily for monetary gain
  - Admissions





# Students





- Cheating
- Plagiarism
- Fabrication
- Bribing
- Sabotage
- Deception

# Why do Students Cheat?\*

- Performance concerns
- Academic load
- Peer behavior: “others do it”
- Pressure from family
- GPA: qualification for ...
- “Unfair” professors
- Time pressure
- Grades for grad school
- Lack of effort
- Low self esteem

\*Point Loma Nazarene University

# *Why Students Do It and What Educators Can Do about It\**

## **Key findings**

- Cheating habits develop prior to arriving at college;
- More than 2/3 of students report some form of cheating;
- Cheating is rampant in professional schools;
- There has been a major shift in cheating related attitudes;
- Individual & contextual factors influence academic cheating: peer behavior and ethical environments;
- A deeply embedded honors code plays a key role in creating ethical environment

\*Matt Church, Univ of Louisville



# Where, when & how do students learn the value of integrity & ethics?

- Parents & role models
- High school & earlier
- Real-life situations, challenges, choices
- Classroom & case studies

# Plagiarism

## different geography/cultures, different views?\*

- Many US academic researchers work with international trainees whose views on scientific writing and plagiarism can be strikingly *different* from U.S. norms.
- One-third of students in US graduate science programs between 1997 and 2007 entered from other nations
- U.S. educators have long recognized that international trainees, especially from developing nations, have particular trouble with U.S. standards of scholarly writing and are at significantly higher risk for committing plagiarism than their U.S. peers.

\* [NIH, Heitman and Litewka]

# Plagiarism

## different geography/cultures, different views?\*

- Fostering high ethical standards within research environments likewise requires increasing attention to *international perspectives*
- A host of factors may make international trainees susceptible to committing plagiarism. Among the most important are: the *normalcy of plagiarism in many environments internationally*; the *lack of formal misconduct policies* in many countries and operationally vague policies on plagiarism where they do exist; *philosophical arguments* against U.S. notions of originality, intellectual property, and authority; and non-native speakers' *difficulties in writing in English*.

\* [NIH, Heitman and Litewka]

# Plagiarism

different geography/cultures, different views?\*

- International trainees charged with plagiarism in the United States often insist that they followed practices common in their home countries. Complaints against senior academics in Korea, China, India, Peru, and Iran have renewed speculation about widespread plagiarism in these and other nations.
- Although no data on actual prevalence exist, both national surveys and international comparisons document high rates of *perceived plagiarism* and other misconduct in emerging research environments and developing nations.

\* [NIH, Heitman and Litewka]

# Ethical Behavior

## different generations, different views?\*

- Traditionalists
  - 1925-44
- Baby Boomers
  - 1945-64
- Gen Xers
  - 1965-1979
- Millennials
  - 1980-2000

\* *Ethical Behavior Differs Among Generations*, C. Verschoor, Strategic Finance, Aug 2013

# Demographics

- Hardworking
- Respectful of authority
- Value loyalty
- Disciplined
- Pragmatic
- Resists change
- Keeps work & family separate
- Dress formally



C. Verschoor, Strategic Finance, Aug 2013



# Demographics

- Hardworking
- Idealistic
- Committed to harmony
- Self-centered
- Sense of entitlement
- Workaholics
- Self-motivated
- Don't appreciate feedback



**BOOMERS**  
1945-1964

C. Verschoor, Strategic Finance, Aug 2013

# Demographics

- Entrepreneurial
- Flexible
- Self-reliant
- Lazy
- Skeptical
- Cynical
- Questions authority
- Desire work-life balance
- Low-end of “business casual”

C. Verschoor, Strategic Finance, Aug 2013



# Demographics

- Tech-savvy
- Appreciates diversity
- Skilled in multi-tasking
- Lack basic literacy fundamentals
- Very short attention spans
- No organizational loyalty
- Expects multiple employers, careers
- Demands immediate feedback, recognition



**MILLENNIALS**  
1980-2000

C. Verschoor, Strategic Finance, Aug 2013

# Ethical Behavior

## different generations, different views?

- Great deal of variability
- But, all tend to inform their supervisors about misconduct
- Youngest workers significantly more likely to feel pressure from others to break ethic rules
  - “eases as workers spend more time in the workforce and learn ways of coping with their work environment”
  - More cases observed by younger workers than older colleagues
- Millennials: high percentage who consider certain behaviors in the workplace to be ethical
  - Social networking to gain unfair advantage, work less to compensate for cuts in benefits/pay, take work software home for personal use, etc.
  - Ignore presence of misconduct if it helps save jobs: “ends justify the means”

C. Verschoor, Strategic Finance, Aug 2013

# Ethical Behavior

## different generations, different views?

- Millennials workplace survey\*
  - Put ethics and values at the “top of the list”
  - 70% (of 7,700 surveyed): Their personal values were driving force behind their decision-making
  - 49% said they refused to perform task at work that went against their personal values

ECI Connector, 19 Jan 2016; [www.ethics.org/blogs](http://www.ethics.org/blogs); Deloitte Annual Survey;

Honesty

Accountability

Integrity

Sincerity

# Core Values

Authenticity

Transparency

Ethical



# Values-led organization

- Core Values
  - Reputation and “Brand”
  - Developing and ensuring *Confidence*
  - Crucial to international agreements
- Organizational
  - Core value: all aspect of our business, all levels of management
  - Integral to our processes

# Values-led educational experience

- Promoting academic honesty
  - Preventive approach more effective than punitive
  - Instilling code of ethics/honor code
- Faculty training
- Consistent messaging
  - Student handbooks & institutional website
  - Incorporating into syllabi, sign pledge, etc
  - Incorporate into curriculum
- Case studies
  - Clear examples of constitutes unethical behavior



# **The Profession: Integrity and Engineering Ethics**



# Engineering Ethics

"Engineering ethics is

(1) the study of moral issues and decisions confronting individuals and organizations involved in engineering and

(2) the study of related questions about moral conduct, character, ideals and relationships of peoples and organizations involved in technological development."

Martin and Schinzinger, *Ethics in Engineering*

# Codes of Ethics

- *National Society of Professional Engineers*
- *Software Engineering Code of Ethics*
- *Civil Engineers*
- *Chemical Engineers*
- *Naval Engineers*
- *Mechanical Engineers*: Applicable to engineers of all disciplines. ASME provides interpretation of the codes for mechanical engineers.
- *Electrical Engineers*: Applicable to engineers of all disciplines.
- *Professional Engineers*: Registered professional engineers.



*We, the members of the IEEE, in recognition of the importance of our technologies in affecting the **quality of life throughout the world**, and in accepting a **personal obligation to our profession**, its members and the communities we serve, do hereby **commit ourselves to the highest ethical and professional conduct** and agree:*



# IEEE

- to accept **responsibility** in making decisions consistent with the **safety, health, and welfare of the public**, and to disclose promptly factors that might endanger the public or the environment;
- to avoid real or perceived **conflicts of interest** whenever possible, and to disclose them to affected parties when they do exist;
- to be **honest** and realistic in stating claims or estimates based on available data;
- to **reject bribery** in all its forms;
- to improve the understanding of technology; its appropriate application, and potential consequences;

# IEEE

- to maintain and improve our technical competence and to undertake technological tasks for others only if **qualified by training or experience**, or after full disclosure of pertinent limitations;
- to seek, accept, and offer honest criticism of technical work, to **acknowledge and correct errors**, and to **credit properly** the contributions of others;
- to treat **fairly** all persons and to not engage in acts of discrimination based on race, religion, gender, disability, age, national origin, sexual orientation, gender identity, or gender expression;

# IEEE

- to avoid injuring others, their property, reputation, or employment by false or malicious action;
- to assist colleagues and co-workers in their professional development and to **support** them in following this code of ethics.

# Codes of Ethics

- Australia
- Canada
- Germany
- UK
- International (WFEO)
- others



The Order of the Engineer is a solemn obligation to oneself to uphold devotion to the standards and the dignity of the engineering profession. It is an obligation to turn to practical use the principles of science and the means of technology...to serve humanity by making the best use of earth's precious wealth.



# **Obligation Of An Engineer**

I am an Engineer. In my profession I take deep pride. To it I owe solemn obligations.

Since the Stone Age, human progress has been spurred by the engineering genius.

Engineers have made usable Nature's vast resources of material and energy

for Mankind's benefit. Engineers have vitalized and turned to

practical use the principles of science and the means of technology.

Were it not for this heritage of accumulated experience, my efforts would be feeble.

As an Engineer, I

---

pledge to practice integrity and fair dealing, tolerance and respect; and to uphold devotion to the standards and the dignity of my profession, conscious always that my skill carries with it the obligation to serve humanity by making the best use of Earth's precious wealth.

As an Engineer, in humility and with the need for Divine Guidance,

I shall participate in none but honest enterprises. When needed, my skill and knowledge

shall be given without reservation for the public good. In the performance of duty

and in fidelity to my profession, I shall give the utmost.





# The Obligation of an Engineer



- *I am an Engineer.*
- *In my profession I take deep pride. To it I owe solemn obligations.*
- *Since the Stone Age, Human Progress has been spurred by the Engineering Genius. Engineers have made usable Nature's vast resources of Materials and Energy for **Humanity's Benefit**.*
- *Engineers have vitalized and turned to practical use the Principles of Science and the Means of Technology. Were it not for this heritage of accumulated experiences, my efforts would be feeble.*
- *As an engineer, I, (full name), pledge to practice **Integrity and Fair Dealing, Tolerance, and Respect**, and to uphold devotion to the **standards and dignity of my profession**, conscious always that my skill carries with it the obligation to **serve humanity** by making best use of the **Earth's precious wealth**.*
- *As an engineer, I shall participate in none but **honest** enterprises. When needed, my skill and knowledge shall be given without reservation for the **public good**. In the performance of duty, and in **fidelity to my profession**, I shall give the utmost.*

# Engineers Creed



**National Society of  
Professional Engineers®**

As a Professional Engineer, I dedicate my professional knowledge and skill to the advancement and betterment of human welfare.

- I pledge:
  - To give the utmost of **performance**;
  - To participate in none but **honest** enterprise;
  - To live and work according to the laws of man and the highest standards of professional conduct;
  - To place **service before profit**, the honor and standing of the profession before personal advantage, and the **public welfare** above all other considerations.
  - In humility and with need for Divine Guidance, I make this pledge.

*Adopted by NSPE, June 1954*

# Ethics and Professional Practice

- Ethics as part of the PE experience and requirements
- 20% states have explicitly require ethics education for licensing

# Summary

- Unethical behavior/corruption exists in all aspects of higher education, worldwide
- Ethics, and views of ethical behaviors does differ by culture and generation
- Proper ethical behavior is foundational to the success of our educational system, and professions
- We need to reinforce at all times



THANK YOU

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