# Engineering Ethics Seminar
# JSC - NASA
# 2013

**Don Johnson, P.E.**

**MEI Technologies**

# Two Ethics Rules

- **Engineers Shall Protect the Public**

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- **Engineers Shall Protect the Public**
- **Engineers Shall Act as Faithful Agents for their Employers and for their Clients**

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- **Reviewing key sections of the Texas Engineering Practice Act.**
- **Review case studies relating to professional ethics.**

# Chapter 1001.004 (c)

**The legislature intends that:**

1. **The privilege of practicing engineering be entrusted only to a person licensed and practicing under this chapter;**

# Chapter 1001.004 (c)

**The legislature intends that:**

2. **Only a person licensed under this chapter may:**

# Chapter 1001.004 (c)

**The legislature intends that:**

**2. Only a person licensed under this chapter may:**

**(A) engage in the practice of engineering;**

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**The legislature intends that:**

**2. Only a person licensed under this chapter may:**

**(A) engage in the practice of engineering;**

**(B) be represented in any way as any kind of "engineer"; or**

# Chapter 1001.004 (c)

**The legislature intends that:**

**2. Only a person licensed under this chapter may:**

**(A) engage in the practice of engineering;**

**(B) be represented in any way as any kind of "engineer"; or**

**(C) make any professional use of the term "engineer."**

# Chapter 1001.004 (c)

**The legislature intends that:**

3. **This chapter will be strictly complied with and will be strictly enforced.**

# Chapter 1001 Subchapter B

## An exception to the
## Texas Engineering Practice Act

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**An exception to the**

**Texas Engineering Practice Act**

- **NASA – to the extent that products or services consist of “space” technology, vehicles or services. 1001.066**

# An Overview:

- **A licensed professional engineer must be in responsible charge whenever engineering services are offered or provided to the public.**

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- **A licensed professional engineer must be in responsible charge whenever engineering services are offered or provided to the public.**

- **The individual and firm offering or providing engineering must be registered with the State of Texas.**

# Continuing Education Definitions

**Professional Development Hour (PDH)**

- **1 College Semester Hour = 15 PDH**
- **1 College Quarter Hour = 10 PDH**
- **1 Hour Self Study = 1 PDH**
- **1 Hour Seminar = 1 PDH**
- **Published Work = 10 PDH**
- **Active Prof. Organization Affiliation = 1 PDH**
- **Each Patent Issued = 15 PDH**

**Continuing Education Unit (CEU)**

- **1 CEU = 10 PDH**

# Chapter 137.17:
## Continuing Education

**Continuing education required for license renewal:**

- **15 PDH required annually.**
- **15 PDH can be carried forward. (but not ethics!)**

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**Continuing education required for license renewal:**

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**Continuing education required for license renewal:**

- **“Shall be relevant to the practice of a technical profession and may include technical, ethical or managerial content.”**
- **Can include formal courses, seminars, publications, presentations and professional society participation.**

# Chapter 137.17:
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- **A license holder may not receive more that five continuing education hours annually for engaging in self-directed study.**

# Chapter 137.17:
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**Continuing education required for license renewal:**

- **A license holder may not receive more that five continuing education hours annually for engaging in self-directed study.**
- **Records must be maintained for 3 years. (SATERN will keep records)**

# Chapter 137.17:
## Continuing Education

**Continuing education required for license renewal:**

- **1 PDH required annually in professional ethics, roles and responsibilities for professional engineering or a review of the Texas Engineering Practice Act and Board Rules. (can not carry over this credit)**

# Chapter 137 Subchapter C:
# Professional Conduct and Ethics

**137.51 General Practice**

- **Professional conduct rules apply to all licensed engineers and firms.**

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- **Compliance with the Board's rulings is required.**

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**137.51 General Practice**

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- **Compliance with the Board's rulings is required.**
- **No licensed engineer can work with an unlicensed or improperly licensed firm.**

# Chapter 137 Subchapter C:
# Professional Conduct and Ethics

**137.51 General Practice**

- **Professional conduct rules apply to all licensed engineers and firms.**
- **Cooperation with the Board is required.**
- **Compliance with the Board's rulings is required.**
- **No licensed engineer can work with an unlicensed or improperly licensed firm.**
- **Licensed engineers may offer services on a full or part-time basis if done through a licensed firm.**

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**137.53 Engineer Standard of Compliance**

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- **Cost information may be shared as part of contract negotiation.**

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- **Requests for bids from governmental agencies must be reported to the Board.**
- **Cost information may be shared as part of contract negotiation.**
- **Competitive bidding in the private sector is not prohibited.**

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- **Any incompetence, gross negligence or criminal violation constitutes misconduct.**
- **Any risk to the public must be reported to “involved parties” and the Board.**
- **Engineers should strive to adequately examine the environmental impact of their actions.**

# Chapter 137 Subchapter C:
# Professional Conduct and Ethics

## 137.57 Engineers Shall Be Objective and Truthful

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# Chapter 137 Subchapter C: Professional Conduct and Ethics

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- Issue statements only in an objective and truthful manner.
- Fraudulent, deceitful, or misleading statements constitutes misconduct.
- Conflicts of interest must be disclosed.

# Chapter 137 Subchapter C: Professional Conduct and Ethics

## 137.57 Engineers Shall Be Objective and Truthful (continued)

- A conflict of interest exists whenever an engineer's own interests may be affected by any of their decisions or actions.

# Chapter 137 Subchapter C: Professional Conduct and Ethics

## 137.57 Engineers Shall Be Objective and Truthful (continued)

- A conflict of interest exists whenever an engineer's own interests may be affected by any of their decisions or actions.
- An assignment may be done if the conflict of interest disclosure and client & employer acceptance is documented in writing.

# Chapter 137 Subchapter C:
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## 137.59 Engineers' Actions Shall Be Competent

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**137.59 Engineers' Actions Shall Be Competent**

- **Engineers shall practice only in their areas of competence.**
- **An engineer may accept assignments outside their area of competence if those phases are done by legally qualified consultants, associates, or employees.**
- **Engineering opinions in court (etc.) must be consistent with accepted principles and/or supported by adequate modeling or analysis.**

# Chapter 137 Subchapter C:
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## 137.61 Engineers Shall Maintain Confidentiality of Clients

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# Chapter 137 Subchapter C:
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**137.61 Engineers Shall Maintain Confidentiality of Clients**

- **Confidential information may only be revealed with the client's consent or as required by law.**
- **Confidential information may be revealed if failure to disclose would constitute a threat to the public's health, safety, or welfare.**

# Chapter 137 Subchapter C:
# Professional Conduct and Ethics

## 137.63 Engineers' Responsibility to the Profession (Part I)

# Chapter 137 Subchapter C: Professional Conduct and Ethics

## 137.63 Engineers' Responsibility to the Profession (Part I)

- **Be honest and ethical in professional and business activities.**

# Chapter 137 Subchapter C: Professional Conduct and Ethics

## 137.63 Engineers' Responsibility to the Profession (Part I)

- **Be honest and ethical in professional and business activities.**
- **Strive to enhance the image of engineers to society and encourage ethical conduct among engineers.**

# End of the Review

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**And Now we will review case studies dealing with making ethical decisions.**

# End of the Review

**And Now we will review case studies dealing with making ethical decisions.**

**Names have been changed and some cases are factious.**

# Hook or Crook

**Adam Smith Graduated as a Chemical Engineer from Texas A&M University. During his senior year Adam took the Engineer In Training (EIT) test as the first step in becoming a Professional Engineer in the state of Texas.**

# Hook or Crook

**Adam Smith Graduated as a Chemical Engineer from Texas A&M University. During his senior year Adam took the Engineer In Training (EIT) test as the first step in becoming a Professional Engineer in the state of Texas.**

**Just before graduation Adam received a letter from Texas Board of Professional Engineers informing him that he had successfully passed the EIT test and that upon graduation he would be certified as an Engineer in training.**

# Hook or Crook

**Adam applied to a number of companies for a chemical engineer position. He had received four invitations for interviews which resulted in three offers.**

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**Adam accepted the offer from the Apex Catalyst Company and he started work a month after graduation.**

# Hook or Crook

**Adam worked for Apex for four years. He had completed a number of successful projects over the four years, each project being more challenging than the last.**

# Hook or Crook

**Adam worked for Apex for four years. He had completed a number of successful projects over the four years, each more challenging then the last.**

**Having some plant project experience under his belt, Adam decided to apply for certification as a Professional Engineer and take the required test.**

# Hook or Crook

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**The day finally arrived and Adam took the 8 hour test.**

**He was not sure how well he had done and waiting for the test results seemed to take forever.**

# Hook or Crook

**Six weeks later the letter came.**

# Hook or Crooker

**Six weeks later the letter came.**

**He had successfully passed the test with a score of 92%.**

# Hook or Crook

**The letter was accompanied with a form from the Texas Board of Professional Engineers which allowed Adam to purchase his Engineering stamp and his embossing tool.**

# Hook or Crook

**The letter was accompanied with a form from the Texas Board of Professional Engineers which allowed Adam to purchase his Engineering stamp and embossing tool.**

**His employer had a policy by which it picked up the expenses for registration as a Professional Engineer, so Adam filled out a purchase requisition for the stamp and embossing tool.**

# Hook or Crook

**Apex Catalyst Company had recently hired new mechanical engineer. His name was Mike Pedersen. Mike had graduated from Penn State with a Master's Degree in Mechanical Engineering.**

# Hook or Crook

**Apex Catalyst Company had recently hired new mechanical engineer. His name was Mike Pedersen. Mike had graduated from Penn State with a Master's Degree in Mechanical Engineering.**

**Mike heard Adam proudly boasting about his PE score and was with him as he filled out the requisition for his stamp and embossing tool.**

# Hook or Crook

**Mike told Adam that he was on his way to purchasing and that he would be happy to drop off Adam's requisition while he was there.**

# Hook or Crook

**Mike told Adam that he was on his way to purchasing and that he would be happy to drop off Adam's requisition while he was there.**

**Adam handed the requisition to Mike and continued to talk about the test with his fellow engineers.**

# Hook or Crook

**Mike told Adam that he was on his way to purchasing and that he would be happy to drop off Adam's requisition while he was there.**

**Adam handed the requisition to Mike and continued to talk about the test with his fellow engineers.**

**Mike headed off to the purchasing department.**

# Hook or Crook

**A week later Adam received his stamp and embossing tool.  He couldn't wait to start putting his credentials on his work.**

# Hook or Crook

**A year passed - Adam was working on a project in Canada and he was doing a great deal of traveling. Mike had been assigned to the same project so the two spent a lot of time together.**

# Hook or Crook

**It didn’t take long before Adam noticed that he could never outdo Mike with a story of past experiences.**

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**Of course having a master's degree was a big thing. But he had also been in the Army and had been a combat pilot in Desert Storm.**

# Hook or Crook

**It didn't take long before Adam noticed that he could never outdo Mike with a story of past experiences.**

**Of course having a master's degree was a big thing. But he had also been in the Army and had been a combat pilot in Desert Storm.**

**He had also spent a year or two with NASA working on future space vehicle design.**

# Hook or Crook

**Adam started to wonder about  Mike's story telling. The two of them are about the same age and there is no way that Adam could have done all these things before his thirtieth birthday.**

# Hook or Crook

**Maybe Mike was a child prodigy who gained his Master's degree at eighteen.**

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**No, he had never seemed very bright with his engineering**

# Hook or Crook

**Maybe Mike was a child prodigy who gained his Master's degree at eighteen.**

**No, he had never seemed very bright with his engineering and prodigies usually didn't go into the Army to fly planes or into chemical plants to run projects.**

# Hook or Crook

**Maybe Mike was a child prodigy who gained his Master's degree at eighteen.**

**No, he had never seemed very bright with his engineering and prodigies usually didn't go into the Army to fly planes or into chemical plants to run projects. They usually went into research or teaching.**

# Hook or Crook

**What should Mike do?**

# Hook or Crook

**At any rate, Adam decided to do a little investigating.**

# Hook or Crook

**First Adam checked with the Texas Board of Professional Engineers.**

# Hook or Crook

**First Adam checked with the Texas Board of Professional Engineers.**

**It didn’t take long to get a reply.**

# Hook or Crook

**The Texas Board of Professional Engineers had no record of Mike ever being a Professional Engineer**

# Hook or Crook

**The Texas Board of Professional Engineers had no record of Mike ever being a Professional Engineer, and the registration number that Adam had given them belonged to an female engineer in Dallas.**

# Hook or Crook

**What should Mike do now?**

# Hook or Crook

**Adam knew he was on to something so he made an appointment with the HR manager at Apex.**

# Hook or Crook

**Adam knew he was on to something so he made an appointment with the HR manager at Apex.**

**He reviewed his suspicions about Mike and related what he found out from the Texas Board of Professional Engineers.**

# Hook or Crook

**The HR manager thanked Adam for his information and told him that he would take over from here.**

# Hook or Crook

**The HR manager took Mike's personnel file and had his staff check all references.**

**Again, it did not take long to get replies.**

# Hook or Crook

**All the professional references were false.**

# Hook or Crook

**All the professional references were false.**

**He did not have a Masters Degree from Penn State, as a matter of fact, Penn State had no record of him ever attending the university.**

# Hook or Crook

**All the professional references were false.**

**He never worked for NASA.**

# Hook or Crook

**All the professional references were false.**

**One glimmer of truth, he did spend time in the army**

# Hook or Crook

**All the professional references were false.**

**One glimmer of truth, he did spend time in the army as a PFC , with less than one year of active duty and a less than honorable discharge.**

# Hook or Crook

**The HR manager terminated Mike's employment.**

# Hook or Crook

**The HR manager terminated Mike's employment.**

**The Texas Board of Engineering would like to talk to Mike.**

# Hook or Crook

**The HR manager terminated Mike's employment.**

**The Texas Board of Engineering would like to talk to Mike.**

**Mike has not returned to the state of Texas.**

# Hook or Crook

# End of Hook or Crook

***IT' S TIME***

***TO HEAR IT AGAIN !!***

# Fundamental P.E. Canons

1. Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties.

# Fundamental P.E. Canons

2. Engineers shall perform services only in their area of competence.

# Fundamental P.E. Canons

3. Engineers shall continue their professional development throughout their careers and shall provide opportunities for the professional development of those engineers under their supervision.

# Fundamental P.E. Canons

4. Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.

# Fundamental P.E. Canons

5. Engineers shall build their professional reputation on the merit of their services and shall not compete unfairly with others.

# Fundamental P.E. Canons

6. Engineers shall associate only with reputable persons or organizations.

# Fundamental P.E. Canons

7. Engineers shall issue public statements only in an objective and truthful manner.

# P.E. Ethics Rule #1

## Engineers Shall Protect the Public !!

# *Thanks for attending!*

**Your attendance will be recorded in Satern**