

**For PDH Credit, Go To --**

**[www.aisc.org/conferencepdh](http://www.aisc.org/conferencepdh)**

**Course ID for this session is**

**GR55S**

**(Number of PDHs = 1.0)**

# **COMPETENCY**

## **of the Civil Engineering Professional of Tomorrow**

**Discussed with the Engineering Professionals Participating in the --**

### **2010 Structures Congress**

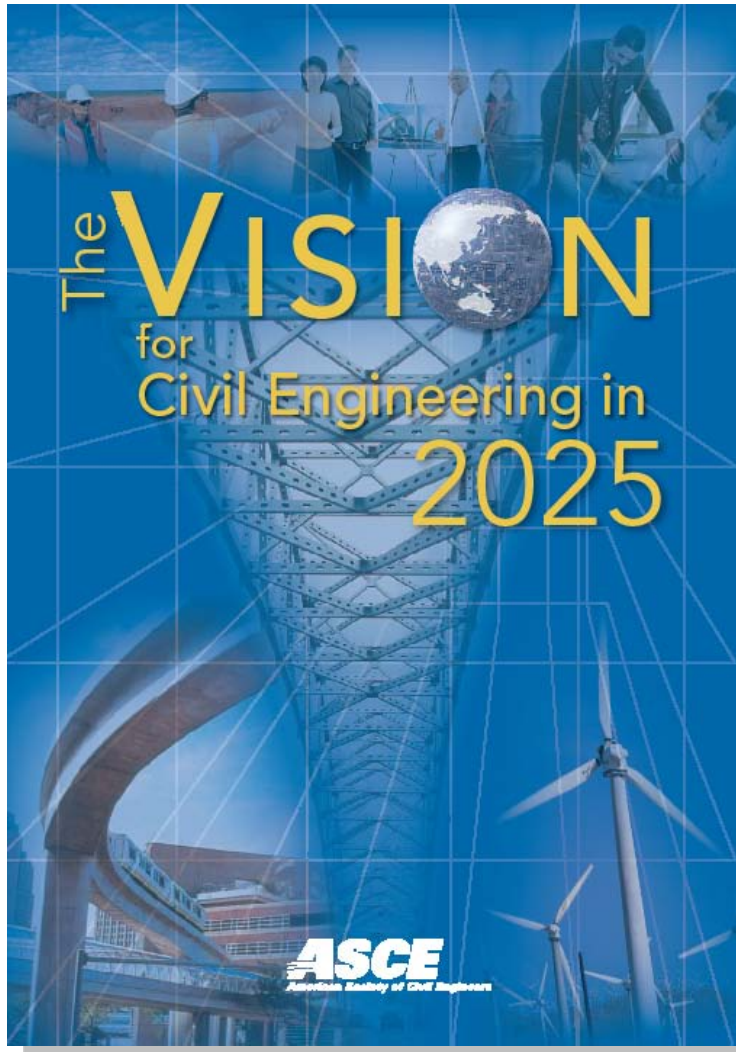
**Orlando, Florida – May 13, 2010**

**Jeff Russell, P.E., Ph.D., Dist.M.ASCE (Chair)**

**Tom Lenox, Ph.D., M.ASCE (Staff Leader)**

**Committee on the Academic Prerequisites for Professional Practice (CAP<sup>3</sup>)**

# Preparing CE's for The Future



*Entrusted by society to create a sustainable world and enhance the global quality of life, civil engineers serve competently, collaboratively, and ethically as **master:***

- **planners, designers, constructors, and operators of the built environment***
- **stewards of the natural environment***
- **integrators of ideas and technology***
- **managers of risk and uncertainty***
- **leaders in shaping policy***

# **BLUF -- Why We Must Act !**

## **1. BOK has expanded due to --**

- Complexity of professional practice.
- Globalization.

## **2. Expanded BOK requires more preparation to protect public's health, safety, & welfare.**

**And the baccalaureate engineering degree has been changing . . . . .**

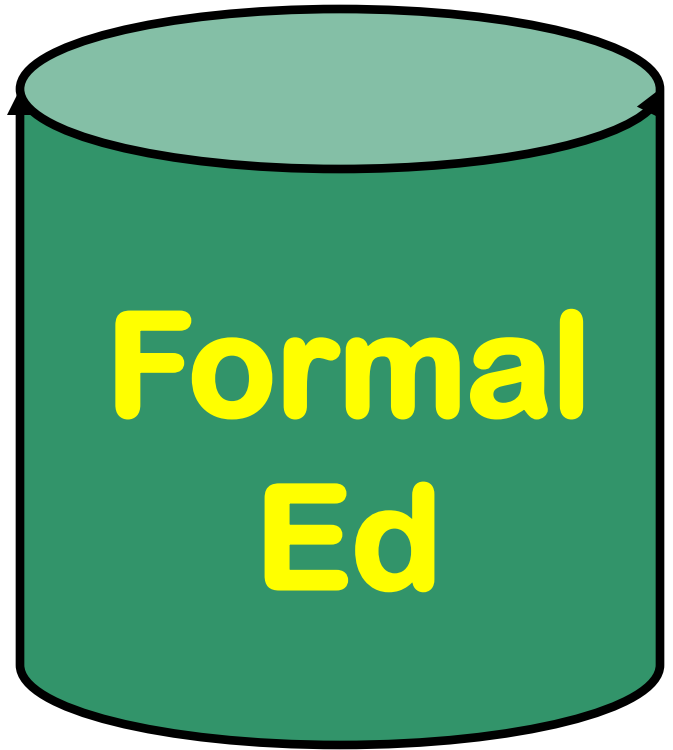
# The “Bottom Line” Problem Statement

*“It is evident that the exploding body of science and engineering knowledge cannot be accommodated within the context of the traditional four year baccalaureate degree.”*

***Educating the Engineer of 2020***  
**NAE Report 2005**

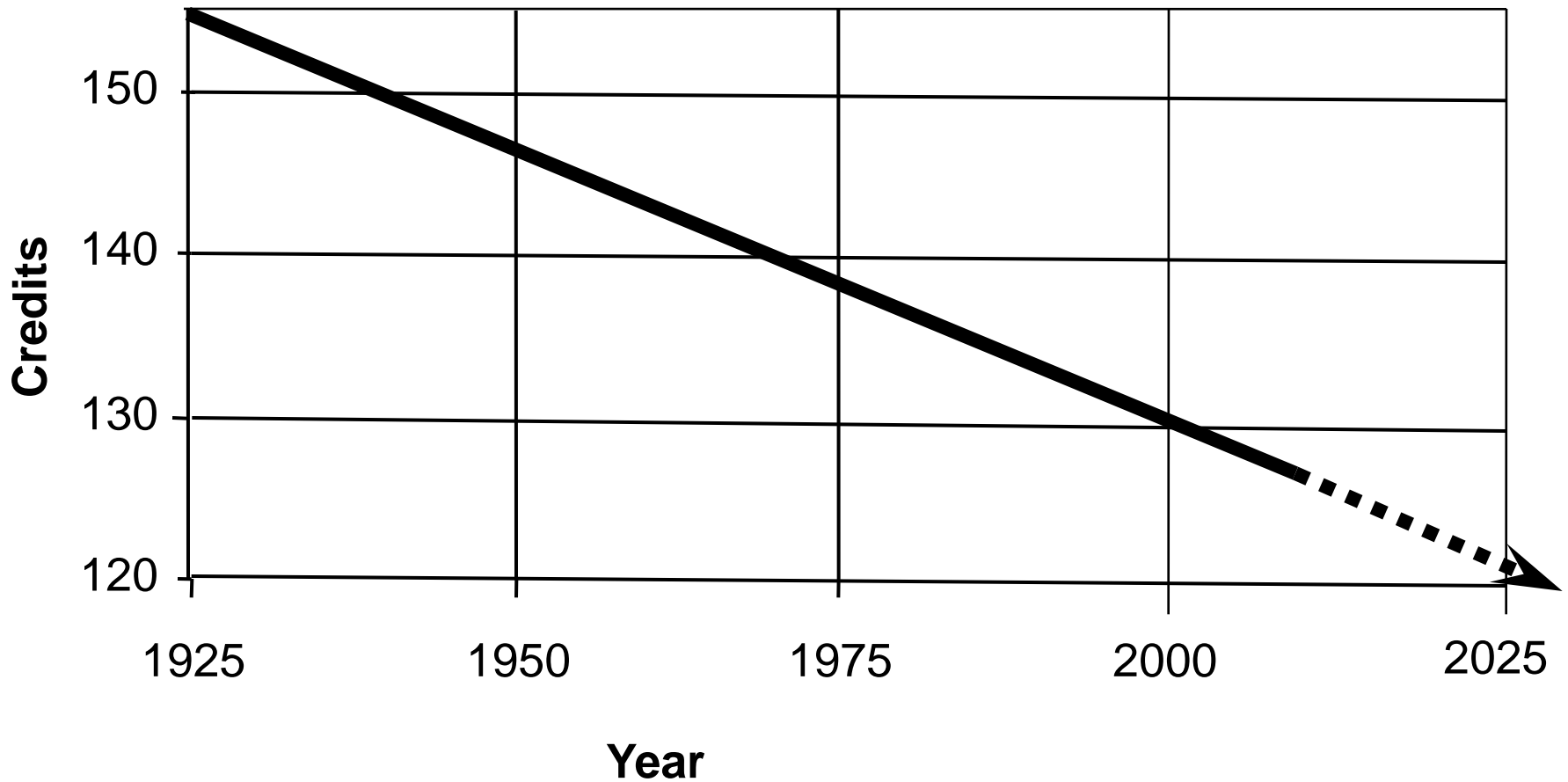


**BOK**

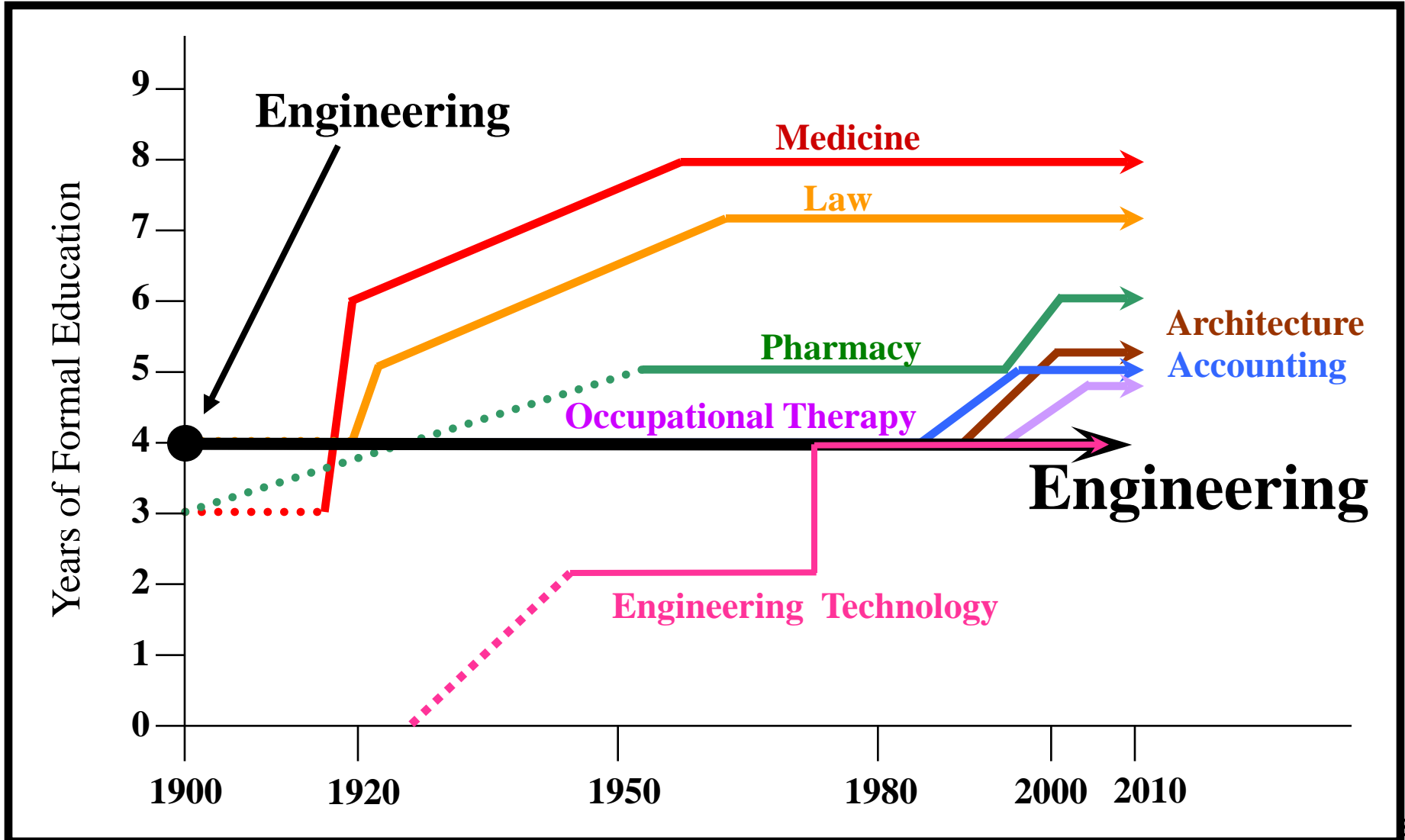


**Formal  
Ed**

# And the engineering degree has been changing . . .



# A Leader No Longer

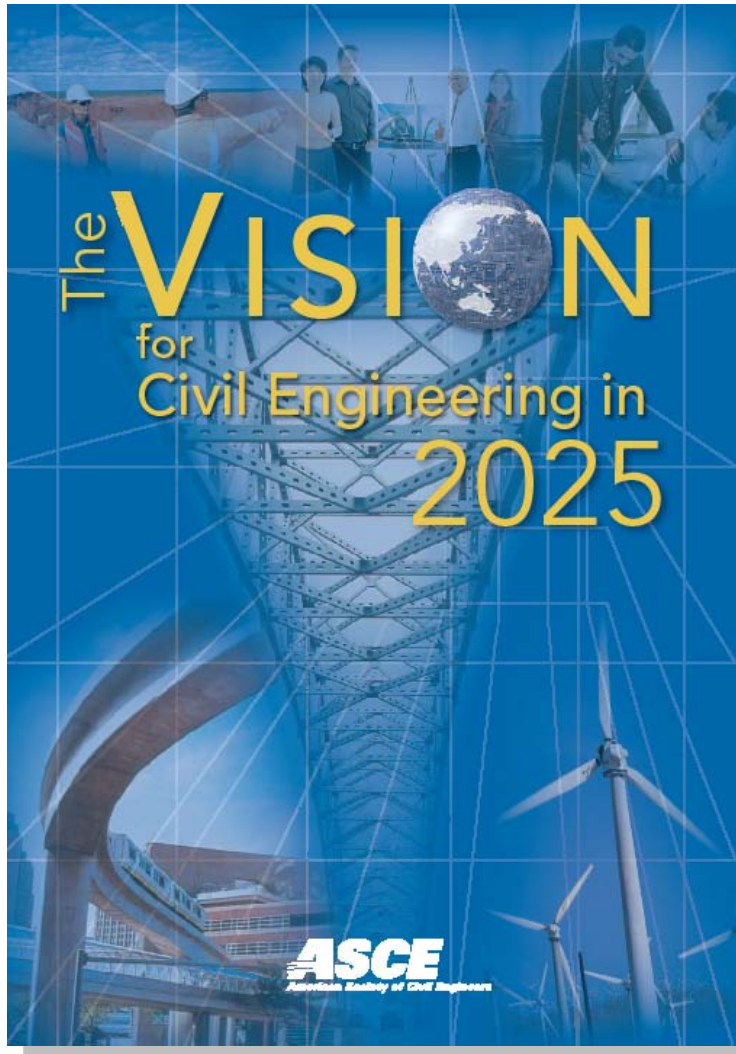






**What  
Are We  
Doing?**

# Preparing for Our Future



*Entrusted by society to create a sustainable world and enhance the global quality of life, civil engineers serve competently, collaboratively, and ethically as **master**:*

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# ASCE Policy 465 -- October 1998

(Refined by BOD in 2001, 2004, & 2007)

The American Society of Civil Engineers supports *the attainment of a Body of Knowledge* for entry into the practice of civil engineering at a professional level.

# ASCE Policy 465 -- October 1998

(Refined by BOD in 2001, 2004, & 2007)

**Fulfillment of this BOK will include --**

1. a baccalaureate degree in CE
2. a master's degree, or approx 30 graduate or upper level technical and/or professional practice credits . . .
3. appropriate experience . . .

**B + (M or 30) & E**

**BOK**

# Master Plan

Primary Input



Key Influence



NCEES  
Model  
Rules



Laws/Rules of 56  
Licensing Boards

NCEES  
Model  
Law



Future-Focused

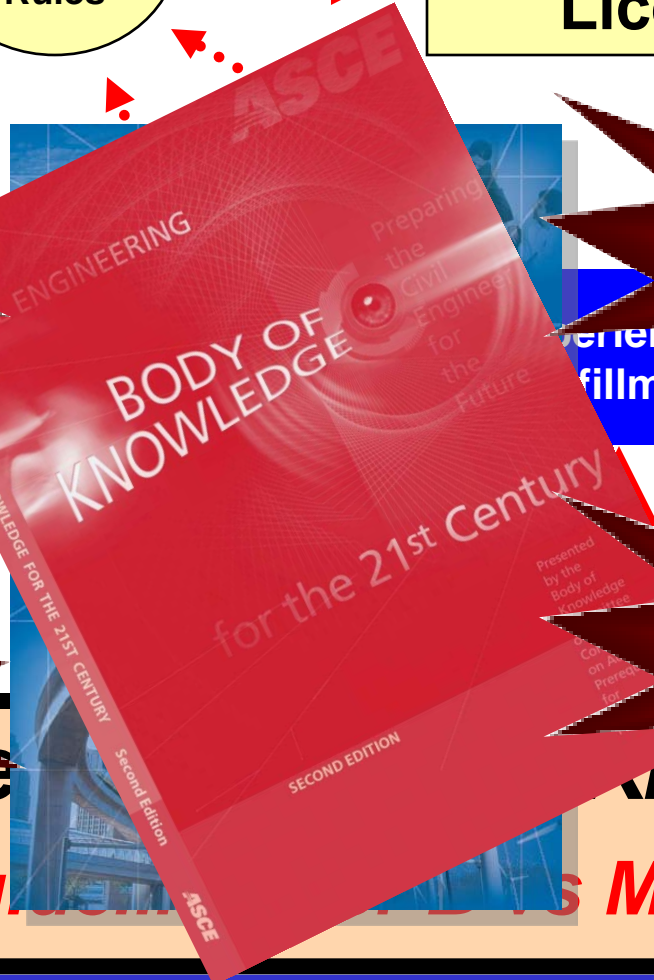
Aspirational

Integration of  
Paraprofessionals

Comprehensive

Strategic

(including guidelines for M/30 vs E)



Vision for Civil Engineering in 2025



**How**  
***Are We***  
***Doing?***



# ASCE's Dynamic Strategy Management

## Strategic Issue

*(the motive to act)*

## Desired Outcomes

*(conditions that will exist when favorably resolved)*

## Guiding Principles

*(parameters placed on the strategy managers)*

## Actions

*(required to achieve these outcomes)*

# Competency Strategy

<b>1.</b>		
<b>2.</b>		
<b>3.</b>		
<b>4.</b>		
<b>5.</b>		



# Competency Strategy

<b>6.</b>	<b>Influence NCEES to amend the Model Rules</b>	<b>Complete</b>
<b>7.</b>		
<b>8.</b>		
<b>9.</b>		

# We Need YOU To --

- Become Informed (Stay Informed)

- Provide Input (1<sup>st</sup>) to --

[www.asce.org/](http://www.asce.org/)

[raisethebar/reports](http://www.asce.org/raisethebar/reports)

- Body of Knowledge (BOK2)

- Experiential (BOK2)

[www.asce.org/raisethebar/reports](http://www.asce.org/raisethebar/reports)

- Licensure

- Universities (Commitments)

- Leadership

- Local

- State ACEC





# Information and Knowledgeable Points of Contact

***[www.asce.org/raisethebar](http://www.asce.org/raisethebar)***

If you have questions or comments, please contact

**Jeff Russell    608.262.7244    russell@engr.wisc.edu**

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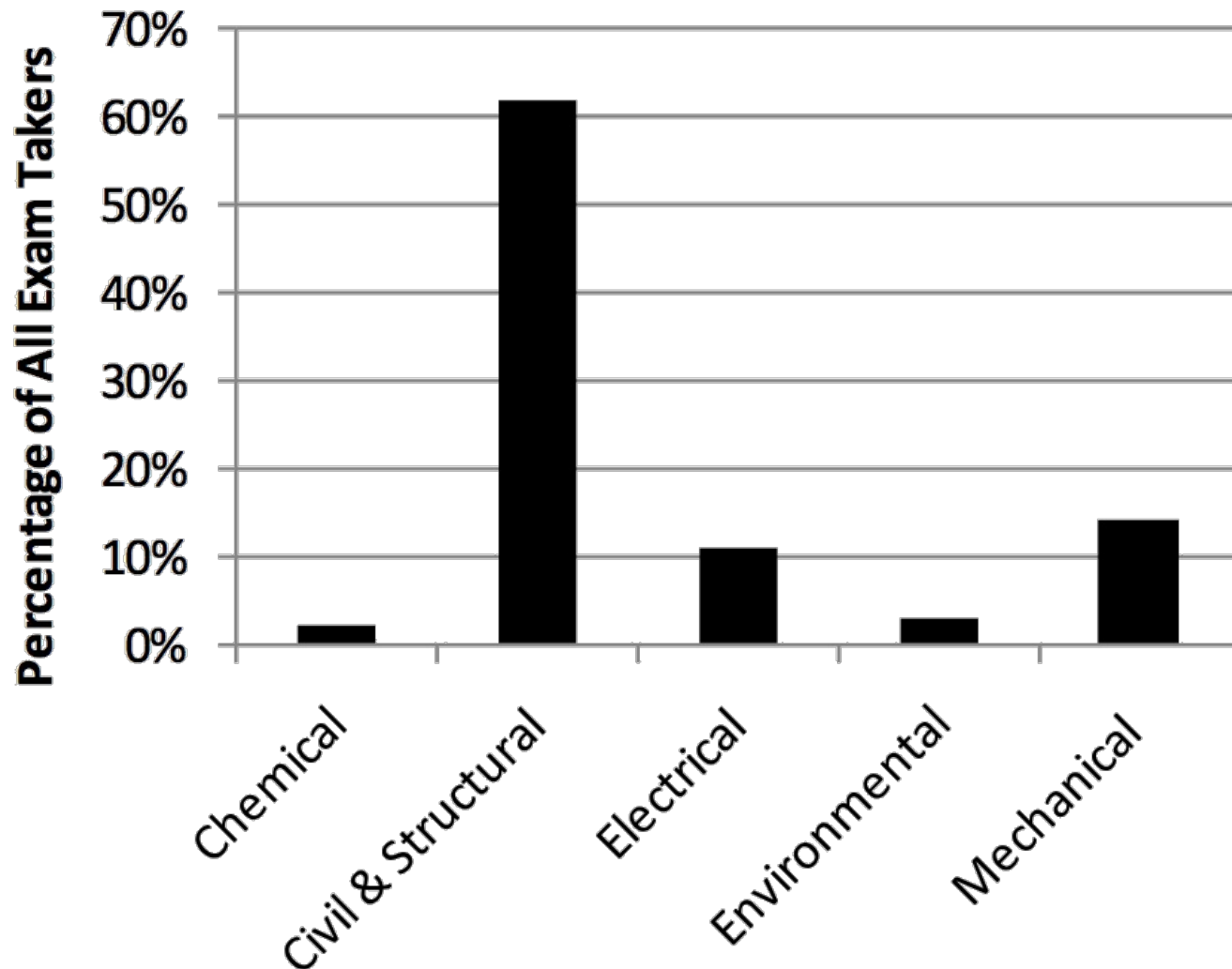
**Tom Lenox    800.548.2723    tlenox@asce.org**



# Discussion

**Slides:  
In Reserve  
for  
Possible Use During Q/A**

# Percentage of PE exam takers by engineering discipline for the past five years



(Miller, T., NCEES Dir. of Examination Services, personal communication, June 29, 2009)

**What Do the  
Model Law/Rules\*  
Say Resulting from the  
NCEES Votes in  
2006, 2007, 2008, & 2009?**

*\* Effective Not Earlier Than January 1, 2020 in any licensure jurisdiction.*



# To Be an Engineer Intern (EI) --

**B**<sup>ABET</sup> + FE Exam

or

**B** + **M**<sup>ABET</sup> + FE Exam

*Model Law Section 130.10 (2020)*





To Take Professional Engineer (PE) Exam,  
you must be Engineer Intern (EI) and

M<sup>ENRG</sup> + Experience

or

M<sup>ABET</sup> + Experience

or

“+30” + Experience



# And what is the +30 ?

- **30 credits of courses equivalent in rigor to upper-level undergraduate or graduate courses.**
- **At least 15 credits in engineering (ALL 30 credits can be in engineering!).**
- **Remainder of credits can include science, math, and/or professional practice topics** (such as business, communications, contract law, management, ethics, public policy, & quality control)
- **From “approved course providers.”**



## Who are “approved course providers?”

- **Institution with EAC/ABET programs.**
- **Institution/organization accredited by an NCEES-approved accrediting body.**
- **Institution/organization that offers specifically approved courses approved by an NCEES-approved accrediting body.**



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AMERICAN COUNCIL OF ENGINEERING COMPANIES

# Last Word

Vol. XXXI, Number 19 • May 15, 2008

NAMED BEST WEEKLY ELECTRONIC NEWSLETTER BY ASSOCIATION TRENDS

[Click here](#) for a printer-friendly Last Word.

## INDUSTRY NEWS

[Falling Bridges Worry State and Local Governments](#)

[New Wave of Nuclear Plants Facing Shaker Shock](#)

[\\$3.4 Billion Proposed For School Renovations](#)

[GSA Creates Green Building Compliance Arm](#)

[DOE Takes Next Steps With Restructured FutureGen Approach](#)

[Click here](#) for more News Briefs.

## ACEC JOB BOARD

### Spring Into Savings With ACEC Job Board

With college graduations upon us, May is a great month to post your available positions on the ACEC Job Board.

Be one of the first 20 firms to post a job and save 25 percent on any posting package you choose. You must use the code SPRINGSAVE to receive your discount. Don't miss these big savings!

With over 600 posted A/E/C Industry Jobs and more than 8,000 candidate resumes, the ACEC Job Board's advanced search features produce effective, specific results for both job seekers and employers.

The ACEC Job Board saves you time and money by not returning the dozens (or even hundreds) of inappropriate results common with some mega job boards.

### ACEC Opposes Bachelor's Plus 30 Initiative; Little Support Found Among Members

The "Bachelor's Plus 30" initiative proposed by the National Council of Examiners for Engineering and Surveying (NCEES) has found little support among ACEC state Member Organizations, Executive Committee and Board of Directors.

The proposal, which was considered in depth by ACEC over the past year, would require a bachelor's degree plus 30 additional credits or master's degree as a prerequisite for licensure. NCEES proposed the initiative in 2006 and is seeking implementation by all states by 2015.

In a letter to NCEES President Gene Corley, ACEC Chairman John Hennessy outlined the Council's concerns: "We believe that the "Plus 30"

would be better incorporated within the basic Bachelor's degree; that if the proposal were enacted in some states and not in others, there would be a serious comity problem; that the proposal would likely exacerbate the engineer shortage; and that it would not enhance the image of the profession."

An ACEC Executive Committee resolution stated that the initiative is "not the most effective approach to promoting engineering professionalism."

The Council remains a strong supporter of NCEES and will continue to work with the organization in a wide range of areas to benefit the engineering community.



ACEC Chairman  
John Hennessy

### Take ACEC Liability Insurance Survey Now; Deadline Extended To May 23

The 2008 ACEC Professional Liability Insurance Survey of Member Firms for fiscal year 2007 is being extended online through Friday, May 23.

This annual survey collects information on Member Firms' professional liability insurance experience, including claims and the threat of litigation.

Member Firms that respond to the survey will receive a free copy of the complete results upon request. The survey results will also be available for sale through the ACEC Bookstore.

To access the survey, please click on the URL below or copy and paste it into your Web browser: [http://www.surveymonkey.com/s.aspx?sm=Kc2sqU5Nn\\_2bIGY1mJ3F3Gcw\\_3d\\_3d](http://www.surveymonkey.com/s.aspx?sm=Kc2sqU5Nn_2bIGY1mJ3F3Gcw_3d_3d)

It is critical that ACEC receives only one response from each member firm. Therefore, only the key principal, risk manager, or another member of the firm designated by the key principal, should fill out this survey. In

Chairman John Hennessy stated that the concerns; that if others, shortage; ution ism."

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# Arguments Against This Change

- High school students are better prepared.
- BS curriculum is already too rigorous.
- Modern teaching resources promote efficiency.
- Shortage of engineers will be exacerbated.
- Costs will increase (for individual and/or employer).
- Experience is key . . . not more education.
- ABET can/will/should take care of this.
- Life long learning is the answer.
- Advances in the cognitive science will solve problem.
- Only licensed engineers are affected by solution.

# Arguments For This Change

- Increased complexity of professional practice has increased BOK to enter profession.
- Globalization requires additional KSA to compete in the global market place.
- Expanding BOK requires additional education to protect public's health, safety, & welfare.
- Other proposed solutions (to date) are not viable (e.g., ABET, experience, etc.).
- **Doing nothing is not an alternative.**

# Top Ten Misconceptions

- ~~10. Implementation will occur instantly.~~
- ~~9. Current P.E.'s must obtain a "M or 30."~~
- ~~8. The goal is to eliminate the 4-year degree.~~
- ~~7. Education is more important than Experience.~~
- ~~6. All CE undergraduates must pursue licensure.~~
- ~~5. "M/30" should follow directly after "B."~~
- ~~4. Degrees (not knowledge) are the key.~~
- ~~3. "M" means traditional MS degree with thesis.~~
- ~~2. The current BSCE will not be changed.~~
- ~~1. We are working for faculty job security.~~





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