Licensure
EXCHANGE

JUNE 2010
Volume 14, Issue 3

NCEES

AN OFFICIAL NCEES PUBLICATION FOR THE EXCHANGE OF INFORMATION, OPINIONS, AND IDEAS REGARDING THE LICENSURE OF ENGINEERS AND SURVEYORS

FEATURE STORY

NCEES RECOGNIZES 2010 ENGINEERING AWARD WINNERS

NCEES has awarded the University of Delaware Department of Civil and Environmental Engineering the grand prize for the 2010 NCEES Engineering Award for Connecting Professional Practice and Education.

The award jury, composed of NCEES members, engineering deans, and representatives from professional engineering organizations, met at NCEES headquarters on March 25, 2010, to select the $25,000 grand prize winner.

University of Delaware students compete to win a commission to provide preliminary engineering for the Pomeroy Trail East Annex. Professional engineers and engineer interns served as guest lecturers and team mentors for the project.

The University of Delaware received the prize for demonstrating excellence in integrating professional practice and education. Its winning project, Pomeroy Trail East Annex, involved student teams competing to win a commission and perform the preliminary engineering for an expansion of a multiuser trail system in their city. The teams worked with engineering mentors from professional practice to consider drainage and environmental upgrades, wastewater system improvements, reevaluation of a proposed groundwater remediation program, and associated infrastructure improvements.

In judging the award, the jury considered criteria such as

- Successful collaboration of students and professional engineers
- Impact on public health, safety, and welfare
- Impact on raising social consciousness
- Multidiscipline and/or allied profession participation

Jury members praised the University of Delaware's project for integrating "real-world experience in an educational setting" and providing "a variety of learning experiences for students that can lead them into a high level of professional, competent, and ethical practice at an early stage in their careers."

NCEES will present the grand prize to the University of Delaware Department of Civil and Environmental Engineering at the NCEES Annual Meeting in August. A recognition ceremony is also planned at the University of Delaware on October 16 as part of its Honors Day.

Additional winners recognized

The jury selected five additional projects to win $7,500 awards (see next page). Throughout April and May, member boards assisted with presentation ceremonies to honor these winners. Members of the South Carolina, New Mexico, Maryland PE, and California boards traveled to university campuses to present the awards.

"It was a privilege to present one to the civil and environmental engineering students at the University of Maryland, my alma mater, and see the work they've done with their Engineers Without Borders chapter," said

continued on page 2

ENGINEERING AWARD

continued from cover

Skip Harclerode, P.E., chair of the Maryland PE board. Harclerode represented NCEES at the presentation ceremony on April 27 at the College Park campus.

Profiles of the award-winners are posted at engineeringaward.com. They will also be featured in the NCEES Engineering Award Book, which will be published in August.

"We were excited to see such innovative approaches to teaching students about professional practice this year. We hope they'll inspire other colleges to try similar collaborations," said NCEES President David Whitman, Ph.D., P.E.

Preparing for 2011 cycle

NCEES is turning its attention to the next award cycle. As part of his address to the Engineering Deans Institute, President Whitman explained the award program and encouraged deans to enter next year's competition. Keri Anderson, manager of corporate communications at NCEES, also attended the April meeting to promote the award. Promotional packets including entry forms, brochures, and posters have been sent to member boards, engineering educators, and NCEES exam development volunteers. Next, NCEES will promote the award at the American Society for Engineering Education Annual Conference and Exposition, which will be held June 20–23 in Louisville, Kentucky.

Award details and entry forms are available at engineeringaward.com. All EAC/ABET-accredited engineering programs are invited to submit projects that integrate professional practice and education. Projects must be in progress or completed by April 1, 2011. The entry deadline is May 16, 2011.

Julie Petrocco-Samora, P.E., and Subhas Shah, P.E., of the New Mexico board, present a 2010 NCEES Engineering Award to course instructor Andrew Schuler, Ph.D., P.E., assistant professor of civil engineering at the University of New Mexico. The university's department of civil engineering received its $7,500 prize at the April 27 presentation.

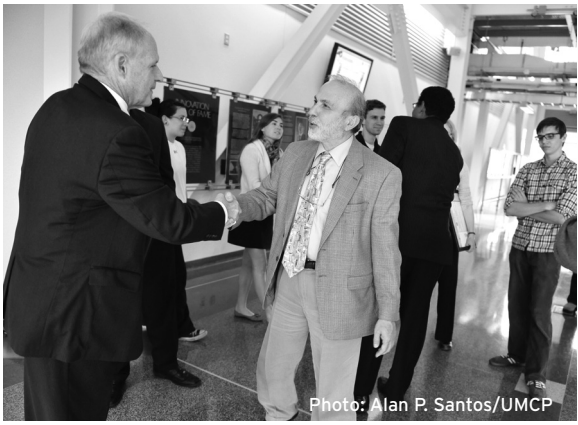

Photo: Alan P. Santos/UMCP

Maryland PE board chair Skip Harclerode, P.E., congratulates Ali Haghani, Ph.D., chair of the department of civil and environmental engineering at the University of Maryland, after the award presentation ceremony. The department received the $7,500 prize for a project to design solar-powered battery recharging stations for African villages.

2010 NCEES Engineering Award

$25,000 Grand Prize Winner

University of Delaware
Department of Civil and Environmental Engineering
Pomeroy Trail East Annex

$7,500 Winners

California Polytechnic State University, San Luis Obispo
Civil and Environmental Engineering Department
Bridging the Gap between Theory and Practice through Capstone Design

California State University, Los Angeles
Department of Civil Engineering
Connecting Practice with Education through Civil Engineering Capstone Experience: Puddingstone Reservoir Operations Level Study

Clemson University
Holcombe Department of Electrical and Computer Engineering
Engineering Haptic Virtual Manipulatives to Enhance K–12 Math and Science Education

University of Maryland
Department of Civil and Environmental Engineering
Engineers Without Borders: Solar Recharge Project in Burkina Faso, Africa

University of New Mexico
Department of Civil Engineering
Integration of Civil Engineering and Construction Management Education: A Multi-disciplinary, Mentor-led Capstone Experience

DAVID L. WHITMAN, PH.D., P.E.
NCEES PRESIDENT

NCEES meets with EAC members to discuss engineering education

As we prepare for the Annual Meeting this August, education requirements for licensure remain a key concern for NCEES. At the May Board of Directors meeting in Salt Lake City, I updated my colleagues on recent developments with ABET. Specifically, I reported on a productive meeting held after the March meeting of the Participating Organizations Liaison Council (POLC), in which 18 members of the Engineering Accreditation Commission (EAC) of ABET, including David Holger, Ph.D., the ABET president, discussed the engineering education initiative with NCEES. I provided a history of how the *Model Law* 2020 requirements developed, and Mike Conzett, P.E., gave an update of the activities of the Engineering Education Task Force, which he chairs. This meeting was a direct result of the zone resolutions passed in 2007 and 2009 that encouraged NCEES leadership to work with ABET in any way that might lead to maintaining the connection between the ABET-accredited B.S. degree and entry into engineering licensure. The intent of the meeting was NOT to discuss the reasons why the professional societies are either in support of, opposed, or neutral to the education initiative, but rather to discuss ways that ABET might be able to make modifications to the B.S. degree that would allow it to remain the "gold standard" with regard to licensure.

ABET leadership agrees with the Council that the body of knowledge of engineering has expanded and that no one should be satisfied with all aspects of the current status of engineering education. However, President Holger noted two concerns. First, there is no consensus among the member societies of ABET on how to address engineering education. Second, the question of how much of the expanded body of knowledge should be covered in an educational environment versus the experiential environment has not been answered.

An important message from ABET is that although the organization has not taken a position on the education initiative, it is able to adjust its process if that is the will of the ABET member societies. ABET, like NCEES, is a member-driven organization, and the licensure process is just one of its concerns. Other stakeholders include state legislatures, parents, and university leadership. Since NCEES and the professional societies are ABET member societies, I believe that we should continue to work with the EAC to incorporate appropriate changes into the ABET criteria. However, this will be a very slow process. There is a clear difference in the perspectives of licensing boards, disciplinary professional societies, and engineering faculty, and many of the latter are not prepared to overhaul the accreditation criteria for B.S. degree programs.

Needless to say, we didn't leave the meeting with a promise that ABET would immediately modify the accreditation criteria for B.S. degree programs, but we did get them to agree to continue this discussion in their EAC meetings while keeping in mind the connection between an ABET-accredited B.S. degree and licensure.

There is a clear difference in the perspectives of licensing boards, disciplinary professional societies, and engineering faculty, and many of the latter are not prepared to overhaul the accreditation criteria for B.S. degree programs.

JERRY T. CARTER
NCEES EXECUTIVE DIRECTOR

NCEES plans for the unlikely to ensure business continuity

Having a disaster recovery plan is akin to having insurance: you never know how good it is until you have to use it.

While reflecting on a potential topic for this installment of Headquarters Update, I received the following e-mail from John Cothron with the Tennessee engineering board:

I'm sure most of you are aware of the flooding we've experienced in Nashville this week. The basement of our building has flooded, so we've been temporarily relocated…. None of our files have been damaged (we're on the 8th floor). It may be several weeks before we are able to return to our office building and everything returns to normal. In the meantime, all mail, phone calls, etc., will be forwarded to our temporary office. Please be aware that we are currently operating with reduced staff and may be a little slow in responding to requests and inquiries. Your patience is appreciated.

My initial reaction was sympathy for John and the Tennessee board; my second was that I was glad this hadn't happened at NCEES headquarters. Although floodwaters are not high on our list of concerns, the NCEES facility is located in the glide path of a local airport and within 10 miles of one of the oldest operating nuclear power plants in the United States. We also have to consider the threat of a tornado or fire. And while we enjoy a view of the mountains, the possibility of a hurricane sweeping across the state and into our area is not something we can discount. For those reasons, I would like to highlight some of the measures NCEES staff has taken in the past two years to create a disaster recovery plan should there be an event that prevents us from accessing the facility and to help protect our electronic information.

Building in redundancy

The most significant step we have taken is reducing the total number of on-site servers from 24 to less than 10 to handle our primary computing/storage needs. We have contracted with an offsite datacenter to provide several servers that sync with NCEES units multiple times throughout the day, which gives us a real-time "spare" of all our electronic data. The datacenter also has its own repetition of systems for security, power, cooling, and connection to the Internet. With these redundancies in place, either site will have the ability to run all Council operations.

Our next step is to conduct a cost/benefit study of contracting with a separate offsite facility to provide workstations for 12 to 15 members of staff who are designated as critical to ensuring the continuity of our business operations. The site would provide telephone, Internet, and physical office space in case of a disaster. This would allow us to redirect our telephone lines from NCEES to the trunk lines at the offsite facility and to access our electronic data from the backup servers, all within a matter of hours. The site would give us full communication capability and allow NCEES to continue to operate until we could use our facility again or we implemented alternate plans.

Protecting electronic information

Additional measures that have been taken include introducing a policy requiring all NCEES staff who have been issued laptop computers to take the laptops home each day (in the event the building

is inaccessible for a period of time) and scanning all contracts and agreements to provide electronic versions. Currently, we are developing a Web-based application to maintain current information on each department's requirements in case of a disaster. This site will house electronically all contact information, critical department documents, and procedures to ensure continuity for each functional area.

Having a disaster recovery plan is akin to having insurance: you never know how good it is until you have to use it. I am pleased with the measures that we have implemented but hope that we never have the occasion to put these plans into action. In short, I hope I never have to send an e-mail like the one from John and the Tennessee board.

FROM THE TREASURER

GENE DINKINS, P.E., P.L.S.
NCEES TREASURER

NCEES continues to protect strong financial position

The Board of Directors believes it is prudent during these uncertain financial times to be more focused on return *of* investment than return *on* investment.

My first year as NCEES treasurer has been a very interesting and rewarding one. I have had the opportunity to see first-hand the details of the Council's finances and have participated in the budget process. I would like to say that the entire financial staff of NCEES is dedicated, hard working, thorough, and does a terrific job of managing our finances.

NCEES is in a strong financial position. Based on preliminary scoring reports, the number of exams administered in April 2010 was about 4.5 percent more than budgeted. This should result in exam revenue exceeding budget by about 3.5 percent for this fiscal year. The NCEES Records program continues to grow, which will also have a positive effect on our financial outcome for the next year.

During its November 2009 meeting, the Board of Directors voted to close the Miami office of the Credentials Evaluations department. These services will be moved to NCEES headquarters in Clemson in early 2011. The board also directed Executive Director Carter to review the business model and procedures used by the department. The board believes there are ways to streamline the department without sacrificing any quality in the evaluation process. Closing the Miami office and adjusting the business plan should result in significant savings in future years.

NCEES continues to take a conservative approach to our investment portfolio. NCEES has a diversified portfolio in the equities markets and maintains 35 percent of its holdings in bonds and cash. The Board of Directors believes it is prudent during these uncertain financial times to be more focused on return *of* investment than return *on* investment.

NCEES continues to strive to achieve financial reserves equal to the sum of resources necessary for a total exam breach ($6.2 million) and 75 percent of its annual operating budget. We are close to reaching this goal. We also may need a significant amount of reserves in case NCEES goes to computer-based testing (CBT) at some time in the future. As of this date, the financial demand that CBT would place on NCEES reserves is still a major unknown.

In summary, the NCEES financial position continues to be strong. Exam demand and revenue are up, and expenses are well under control. Our conservative investment strategy will preserve our capital during these challenging financial times.

Finally, as I enter the second year of my term, I thank all of the NCEES staff for their support over the last year. To all member boards and board members, please feel free to contact me at any time if you have questions concerning NCEES finances or if I can assist you in any way.

Key changes ahead for NCEES exams

Policies and procedures introduced to increase security and improve exam offerings

TIM MILLER, P.E.
NCEES DIRECTOR OF
EXAM SERVICES

The October 2010 exam administration brings some important changes, including the introduction of new policies and procedures to strengthen exam security. Here's an overview of what's ahead.

Examinee management system

We will begin using the NCEES examinee management system for the October 2010 administration. When exam candidates log on to the NCEES Web site to register for the exam they intend to take, NCEES will issue them a unique identification number. Candidates will use their ID anytime they take an NCEES exam in the future.

This centralized system will allow member boards to track a candidate's attempts at an exam across jurisdictions, strengthening exam security and allowing boards to better enforce limits on exam attempts.

Registration for the October 2010 exams will be open from July 6 to September 12. All examinees must be registered in the NCEES examinee management system by September 12.

Separating afternoon modules

NCEES will begin printing the afternoon modules for the PE Mechanical, PE Civil, and FE exams in separate booklets. Candidates taking these exams will choose an afternoon module when registering with NCEES. On exam day, they will receive their selected module and will not be able to change to a different one.

This change will help prevent copying by allowing proctors to separate candidates taking the same module. Printing the modules separately will also minimize the impact of having an exam booklet compromised.

New specifications for PE Agricultural

The PE Agricultural exam will have revised specifications. The new specifications are posted at ncees.org/Exams, and an updated study guide will be available from the American Society of Agricultural and Biological Engineers this summer.

Final administration of STR I and II

NCEES will begin administering the 16-hour PE Structural exam in April 2011. Therefore, October 2010 is the last time the current Structural I and II exams will be offered.

Looking ahead, we will post the design standards for the new exam and publish a new *PE Structural Sample Questions and Solutions* in November 2010. The specifications for the new exam are posted online at ncees.org/Exams.

NCEES wanted to create a national structural engineering exam that could be used by all jurisdictions that license structural engineers by 16 hours of examination, including states with high seismic activity. This single exam has been designed to eliminate the need for state-specific exams, thereby facilitating comity licensure for structural engineers.

The exam will have two 8-hour components, with the Vertical Forces component offered on Friday and the Lateral Forces component offered on Saturday. Candidates may take either or both in any exam administration. NCEES will use the new examinee management system to track a candidate's attempts on a component and notify the appropriate licensing board of the results.

New addition to exam development

In closing, we are pleased to welcome a new exam development engineer to our team.

Tom Dodd, Ph.D., P.E., joined NCEES in March to oversee the development of the PE exams in architectural, environmental, metallurgical and materials, and petroleum engineering.

A native of Walhalla, South Carolina, Tom earned bachelor's and master's degrees from Clemson University and a doctorate in biological engineering from N.C. State University. Prior to joining NCEES, he was a senior application engineer at Kruger Inc. in Cary, North Carolina.

Committees continue exam oversight in 2009–10

Three standing committees oversee exam content and policy for NCEES: the Committee on Examination Policy and Procedures (EPP), the Committee on Examinations for Professional Engineers (EPE), and the Committee on Examinations for Professional Surveyors (EPS). In 2009–10, these committees addressed recurring charges as well as special exam-related issues.

Their full reports are included in the *Action Items and Conference Reports*, which will be available in July in preparation for the Annual Meeting this August. The following are highlights from their reports.

Overseeing exam development

The EPE and EPS committees are responsible for supervising the development and maintenance of the fundamentals (FE and FS) and principles and practice (PE and PS) exams.

As part of their recurring activities, the committees implement audit recommendations approved by the NCEES Board of Directors, oversee the training of item writers to ensure they understand the statistical methods used to create effective licensure exams, and conduct Professional Activities and Knowledge Studies (PAKS) to update exam specifications.

This year, the EPE Committee approved specifications for the PE Agricultural exam that will go into effect in October 2010. It also approved specifications for the PE Chemical and PE Environmental exams that will go into effect in April 2011.

Requiring an FE discipline-specific module

The FE exam includes a common session in the morning and a discipline-specific module in the afternoon. The majority of examinees fit into the larger engineering disciplines with their own afternoon modules: civil, mechanical, electrical, chemical, environmental, and industrial engineering. The Other Disciplines module is offered for disciplines with smaller numbers of examinees.

Many examinees from disciplines that have afternoon modules choose to take the Other Disciplines module instead, despite data indicating that pass rates are higher for those who select the module matching their degree when available. This practice causes the outcomes assessment data that NCEES provides to engineering programs at colleges and universities to be less precise.

The EPE and EPP committees investigated whether NCEES should require FE examinees to take the discipline-specific module if there is one available in their discipline. The committees agreed that, while it is preferable for examinees to take the appropriate discipline-specific module, NCEES should not require it. Instead, the committees recommend that NCEES and its member boards continue to encourage examinees to choose the afternoon module in their discipline.

Researching closed-book policy for PE and PS

In order to address security concerns and computer-based testing issues, the EPE and EPS committees were charged with recommending a transition plan to move open-book exams to closed-book exams using an NCEES-supplied reference or with developing a plan to reduce the number of references. (Both the PE and PS exams are open-book, while the FE and FS exams allow only an NCEES-supplied reference.)

The EPS Committee will introduce a motion at the Annual Meeting to charge the EPP Committee with amending the applicable exam policies to 1) limit the number of references permitted for PS examinees to five, effective with the October 2012 exam administration and 2) implement a closed-book policy with an NCEES-supplied reference for the PS exam beginning no later than the October 2014 exam administration.

The EPS Committee recommends that the transition plan include reviewing the item bank to determine which exam items require formulas or other reference material to solve, replacing items with ones that could be answered with an NCEES-supplied reference,

and assembling a list of the formulas and other reference material that need to be included in the NCEES-supplied reference. After surveying PE exam candidates about the number of references actually used during the exam, the EPE Committee set a goal to develop a plan to limit the number of reference books to 15 by the April 2013 administration. The committee recommends that the president create a task force to research and address the impacts of a closed-book exam, including the feasibility and cost of developing and maintaining a reference manual for each PE exam.

Jurisdictional exams and the MLS designation

To address its charge to consider whether a two-hour jurisdictional exam should be part of the requirements for the Model Law Surveyor designation, the EPS Committee conducted a comprehensive review of the state-specific exams offered by member boards.

The committee concluded that the Model Law Surveyor requirements do not need to be altered, but it will present a motion to charge the UPLG Committee to amend *Model Law* Section 130.10, General Requirements for Licensure, to remove the reference to a 6-hour exam and specify "an NCEES-prepared examination … and any required state-specific examination" instead. The committee recommends this amendment to accommodate future changes to the format of the PS exam and to allow individual boards to determine the appropriateness of a jurisdiction-specific exam.

Surveying education requirements

The EPS Committee reviewed Position Statement 9, Bachelor of Science Degrees in Surveying Engineering, Surveying and Mapping, and Geodesy. It will present a motion to add a section to state that Model Law Surveyors should be used to prepare and establish the cut scores for FS exams and that the content of the FS exam should test the knowledge obtained in a baccalaureate surveying degree that will enable the individual to protect the public.

EPP proposes exam policy amendments

While the EPE and EPS committees oversee exam content, the EPP Committee is responsible for reviewing exam development and administration policies and proposing amendments when necessary.

This year, the committee will propose an amendment to Exam Administration Policy (EAP) 8, Release of Examination Results, to accept all exam results as final unless a subsequent change made within one year of the release date gives a candidate a passing score. NCEES would notify a member board only if a candidate who failed would have passed as a result of a later answer change. NCEES could still notify a member board at any time if it learned that a candidate engaged in improper conduct during the exam or jeopardized the security of an NCEES exam.

The committee's investigation of the treatment of candidates who fail to comply with the NCEES Candidate Agreement has resulted in another EPP motion to amend EAP 8. The committee reviewed data from five exam administrations and found that jurisdictions differ from each other in their responses to infractions such as possessing a cell phone or continuing to write at the end of the exam. To promote uniformity and fairness, the committee recommends that EAP 8 be amended to authorize NCEES to invalidate a candidate's score, if necessary, in response to a failure to comply with the terms of the NCEES Candidate Agreement. Boards would continue to investigate any cases of collusion.

After surveying PE exam candidates about the number of references actually used during the exam, the EPE Committee set a goal to develop a plan to limit the number of reference books to 15 by the April 2013 administration.

COMMITTEE FOCUS

MONTE PHILLIPS, PH.D., P.E.
FACULTY LICENSURE TASK FORCE CHAIR

Task force investigates ways to increase licensure of engineering faculty

President David Whitman, Ph.D., P.E., formed the Faculty Licensure Task Force this year to find ways to encourage more engineering faculty to become licensed.

The task force is charged to recommend changes to the *Model Law* and *Model Rules* and identify best practices to encourage more engineering faculty to become licensed. Monte Phillips, Ph.D., P.E., the task force chair, recently provided an update on the group's findings.

The task force's full report is included in the *Action Items and Conference Reports*, which will be available in July.

Why is the issue of increasing faculty licensure important to NCEES?

Since the NCEES *Model Law* recognizes teaching by engineering faculty as the practice of engineering, it would seem logical to encourage the licensure of engineering faculty.

Of equal or greater importance is the conclusion in the task force report that losses from the licensure pipeline occur primarily while students are still in school, rather than between the FE and PE examinations. This supports the perception that engineering faculty can and should play an important role in encouraging engineering students to initiate the licensure process by taking and passing the FE examination. It is frequently argued that engineering faculty who are licensed will be more inclined to promote licensure to their students.

Model Law 110.20 A.5 includes the "teaching of advanced engineering subjects" in the definition of the practice of engineering. How many jurisdictions currently require engineering faculty to be licensed?

A total of 50 licensing boards responded to the member board administrators' survey on engineering faculty licensure requirements. Of those, nine engineering boards have language in their licensing laws that requires engineering faculty to be licensed, but only four enforce the requirement. There are two states that exempt engineering faculty from licensure requirements.

In its report, the task force encourages all state licensing boards and legislatures to include the teaching of engineering and engineering research in their practice definition and to accept academic experience as one means of fulfilling the experience requirements for licensure.

What changes to the *Model Law* or *Model Rules* is the task force proposing to encourage more engineering faculty to become licensed?

The task force will recommend that the Council approve an alternate pathway to licensure in the *Model Law* for those individuals who have an earned engineering doctoral degree. The alternate pathway acknowledges the distinct difference between practicing engineering in an academic environment and other areas of practice. While the proposed new section in the *Model Law* is obviously aimed at engineering faculty, the requirement would apply to anyone with an earned doctoral degree in engineering.

There may be critics of the proposed alternate pathway to licensure who consider this an easy path. They should be reminded that anyone aspiring to become licensed may select this path by earning a doctoral degree and fulfilling the experience and examination requirements.

Why is an alternate pathway necessary?

The task force was charged with recommending changes to the *Model Law* and *Model Rules* that would encourage more engineering faculty to become licensed. The recommended alternate pathway to licensure for those holding an earned doctoral degree in engineering is a response to this charge. The requirements for this new section of the *Model Law* are not trivial, nor do they trivialize the licensure process. The section explicitly accounts for the knowledge and skill of engineers who hold terminal degrees in their field.

How are the requirements for the alternative pathway different from the current requirements?

There is no change in the FE examination requirements, i.e., the current requirements permit applicants with an earned doctoral degree to pursue licensure without having taken and passed the FE examination.

The proposed alternate pathway requires a record of four or more years of progressive experience acceptable to the board following the award of the earned doctoral degree in engineering. The current requirements allow an applicant with an earned engineering doctoral degree two years of credit for experience; thus, the experience requirement in the proposed alternate pathway exceeds what is currently in the *Model Law* for those with an earned doctoral degree.

There is also a variation in the principles and practice examination requirements. The proposed *Model Law* section assumes that a person holding a doctoral degree in engineering has knowledge of engineering fundamentals as well as in-depth, specialized knowledge in an engineering discipline that has justified the award of a doctoral degree. What the applicant may lack is a commensurate knowledge of licensure laws, professional practice, and ethics desired of professional engineers. Preparing for and passing an examination covering these areas would validate knowledge of these topics.

Would the proposed exam covering licensure laws, professional practice, and ethics be a state-specific or national exam?

Scope and details of the proposed professional exam, including whether it's state-specific or national, would be charged to a future NCEES committee following Council approval of this alternate path to licensure.

The task force will also propose removing the phrase "on engineering projects" from the experience requirements for engineering licensure in the *Model Law*. Why should this phrase be removed?

Engineer interns satisfy the experience requirements for licensure in a variety of ways, as evidenced by the broad definition of the practice of engineering in the *Model Law.* Not all prospective licensees gain their engineering experience by working on engineering projects. A faculty member may be one, but certainly not the only, example of an engineer intern who has met the experience expectations for licensure without working on engineering projects. Removal of the phrase simply acknowledges this reality.

What practices or initiatives does the task force recommend to encourage more engineering faculty to become licensed?

There are several suggestions included in the task force report for addressing the challenge of encouraging faculty licensure.

It is commonly accepted that the current reward system for engineering faculty at most colleges and universities places little or no value on licensure. In the evaluation of faculty for promotion and tenure, excellence in teaching, research, and service are commonly identified as the three elements necessary for advancement. In reality, the expectation placed on faculty to attract outside funding that supports research enterprises far exceeds any expectations in the other two areas. The research expectation of the faculty reward system drives both the hiring and promotion processes at most institutions.

Formulating a plan to alter the university culture to include licensure as a criterion in the tenure and promotion process would appear to be one of the more promising task force recommendations.

RICK HUETT
COMMITTEE ON LAW ENFORCEMENT MEMBER

Weighing the impact of criminal convictions on licensure

It would be a difficult task to set a specific disciplinary sanction for a specific criminal offense. We tend to view certain types of crimes differently, and rarely do similar crimes contain identical circumstances and facts.

The NCEES *Model Law* contains language that specifically addresses a board's authority to take action relative to criminal convictions. In Section 150.10, it states in part, *The board has the power to suspend, revoke, place on probation, fine, recover costs, and/or reprimand, or to refuse to issue, restore, or renew a license or intern certification to any licensee or intern that is found guilty of … any crime that is a felony, whether or not related to the practice of engineering or surveying; and conviction of … any crime, whether a felony, misdemeanor, or otherwise, an essential element of which is dishonesty or which is directly related to the practice of engineering or surveying.*

The statute for my home state, Alabama, differs slightly from the *Model Law* and requires the board to revoke the license of any individual who receives a felony conviction, whether or not the crime is related to the practice of engineering or surveying and to revoke the license for any misdemeanor conviction that is directly related to the practice of engineering or surveying. The board can stay the revocation; however, this has not been its tendency in most cases. It's easy to see that a criminal conviction has a tremendous impact on the ability to obtain, or maintain, a license in the state of Alabama.

As part of its license application and renewal process, the Alabama board reviews court records to determine if an initial applicant has received a criminal conviction, it reviews the NCEES Enforcement Exchange database to see if any disciplinary action has been taken by other jurisdictions against applicants for licensure or individuals already licensed in Alabama, and it requires all licensees to answer questions concerning disciplinary actions and criminal convictions as a condition for annual license renewal. The questions asked on the renewal application are

- Have you been convicted of a felony or misdemeanor (other than a minor traffic violation) or entered a nolo contendere plea or entered a plea under the First Offender Act since your last renewal?
- Have you been subject to disciplinary action by this or any other licensing board since your last renewal?

Licensees who report a disciplinary action or criminal conviction are required to submit documentation relative to the violation. While disciplinary actions generally fall into two broad categories—conduct or competency—reported criminal violations range from public intoxication to homicide. (Yes, Alabama has a former licensee currently serving a 20-year prison sentence for murder.)

Because of the numerous types of reported criminal convictions—and the perceptions attached to them—last year, the NCEES Committee on Law Enforcement was charged to develop guidelines to assist member boards with evaluating the types of criminal convictions that

should be considered as grounds for denying a license or placing sanctions on an existing license. The committee concluded that the NCEES *Model Law* and *Model Rules* adequately address criminal convictions as they relate to an applicant's eligibility for licensure. The committee also decided it was best to evaluate each criminal conviction on a case-by-case basis and developed criteria for member boards to consider when evaluating criminal convictions. The criteria included

- Type and seriousness of offense—Some convictions, such as sex crimes and violent offenses, may automatically result in denial of licensure or revocation of a professional license, as compared with misdemeanor offenses, which are typically less serious.
- The offender's rehabilitation—Has the individual completed probation or court-ordered treatment programs?
- The offender's chance of recidivism
- Whether the offense directly related to the offender's practice of engineering or surveying
- The age of the offender when the crime was committed
- The offender's criminal history
- The amount of time elapsed since the offense(s) occurred

The ultimate goal is to determine the individual's fitness for licensure.

For an example of the use of these criteria, a member board granted a license to a professional engineer from another state who disclosed on his application that he had a felony burglary conviction. Upon review, the board determined that the offense had occurred 15 years earlier and the applicant had completed his sentence, graduated from school, obtained a professional engineer license in another state, and had practiced for 11 years without incident.

There have also been cases reported to NCEES Enforcement Exchange in which member boards revoked licenses of individuals for criminal convictions involving child molestation, sexual assault, or child pornography. Although these offenses were unrelated to the individuals' practice, the member boards felt the acts were evidence that the licensees were not of good moral character and therefore unfit for licensure.

It would be a difficult task to set a specific disciplinary sanction for a specific criminal offense. We tend to view certain types of crimes differently, and rarely do similar crimes contain identical circumstances and facts. It is more appropriate for member boards to review violations on a case-by-case basis and fairly consider all facts and circumstance before reaching a conclusion.

NCEES updates FE exam white paper

2010 version provides latest guidance on using exam for outcomes assessment

The main guide for using the FE exam in assessing academic programs has recently received a makeover. This white paper, now titled *Using the Fundamentals of Engineering (FE) Exam as an Outcomes Assessment Tool*, is an update of the guide originally published in 1999 and last updated in 2005.

The FE exam is the only uniform, nationally normed exam that tests candidates on the material typically covered in college engineering degree programs. The FE is the first of two exams used in the licensing of engineers, but its design also allows it to be used to assess competency in different curriculum areas.

NCEES offers ABET-accredited institutions reports that break down the performance of students and graduates from their degree programs, comparing results on specific content areas to national averages.

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Several NCEES member board members and engineering educators created this white paper to explain how engineering departments can effectively and efficiently use these performance reports in assessing their programs.

What's new for 2010

The new version keeps the same overall format, but NCEES has updated the figures and timelines and streamlined the information included in the sample subject matter reports. NCEES also incorporated the results of the 2010 survey of institutions with EAC/ABET-accredited programs on how they use the FE exam for assessment.

"We wanted to make the white paper relevant for today's exam," said NCEES President David Whitman, Ph.D., P.E., who spearheaded the update. "The 2005 version explained how to bridge the gap between the old exam specifications and the new ones. That's not needed now, so it was time to bring the instructions up to date for our current specifications."

Promoting the FE for outcomes assessment

President Whitman presented the updated white paper at the 2010 ASEE Engineering Deans Institute and spoke to the group about using the FE exam for outcomes assessment. NCEES Exam Development Engineer Lehmon Dekle, P.E., also attended the April 11–13 meeting in St. Petersburg, Florida, to talk to deans one-on-one about effectively using the subject matter reports.

President Whitman; Past President John Steadman, Ph.D., P.E.; and Steven Barrett, Ph.D., P.E., three of the paper's authors, gave a presentation on using the FE exam for ABET outcomes assessment at the ABET Symposium in Las Vegas, held April 15–17.

Next, Steadman and Barrett will lead a technical session on using the FE exam subject matter reports at the American Society for Engineering Education Conference on June 20–23 in Louisville, Kentucky. Dekle will attend the accompanying exposition with fellow exam development engineer Tom Dodd, Ph.D., P.E., to promote the FE exam as an outcomes assessment tool.

"One thing we're stressing at these meetings is that you need to look at the subject areas that are relevant to your program, not just at the overall pass rate," said Dekle, who coordinates the development of the FE exam. "The white paper explains how to use the reports to get information that's really useful to an individual program."

A copy of *Using the FE as an Outcomes Assessment Tool* and the accompanying frequently asked questions can be downloaded from ncees.org/Licensure/Educator_resources.

MEMBER BOARD NEWS

ALABAMA Earl Richard Foust is a new appointee. Aloysius Reisz is no longer a board member.

DISTRICT OF COLUMBIA Stephen Coleman is no longer a board member.

FLORIDA PS Patrick Talbott is a new appointee.

GUAM Andrew Leon Guerrero and Bernard Benavente are new appointees. Lawrence Perez and Elena Garcia are no longer board members.

LOUISIANA Theodore Thompson is a new appointee. James Garber is no longer a board member.

MINNESOTA David Krech, Peter Miller, and Marjorie Pitz are new appointees. Harvey Harvala, Mary West, and Doris Sullivan are no longer board members.

NORTH CAROLINA Linda Thurman is a new appointee.

TENNESSEE PE Board chair Robert Campbell passed away on March 25. A member of the board since 2004, he served on the 2009–10 NCEES EPE Committee.

TEXAS PE Lance Kinney is the new executive director.

WISCONSIN Angela Arrington is the new board administrator.

New NIEE movie stresses engineering ethics

In April, the National Institute for Engineering Ethics released its latest contribution to teaching professional ethics in engineering. The 30-minute movie, *Henry's Daughters*, follows the ethical conflicts of three family members working on a smart highway design project. The characters face ethical issues such as conflicts of interest, sexual harassment, intellectual property, and individual privacy. They disagree over the tradeoffs between technical performance, safety, reliability, and cost and discover how political and social factors can influence technical decisions.

Henry's Daughters is subtitled in 13 languages, including English for the hearing impaired. A 24-page study guide accompanies the DVD. It includes suggestions for using the film and questions to facilitate discussion.

Henry's Daughters was developed by NIEE and the Murdough Center for Engineering Professionalism at Texas Tech University with donations from individuals, companies, and engineering societies, including NCEES.

In recognition of its $5,000 contribution toward the development of *Henry's Daughters*, NCEES received five copies of the DVD. If a member board would like to borrow one, e-mail the request to outreach@ncees.org.

The DVD is available for purchase online at niee.org or by contacting NIEE at 806-742-3525. NIEE is also distributing free copies to engineering colleges with ABET-accredited programs and to 200 colleges outside the United States.

Upcoming Events

June 3–5
Electrical and Computer Exam Meeting,
Clemson, South Carolina

June 10–12
Structural II Scoring Workshop,
Clemson, South Carolina

June 18–19
Bridge Cut Score Meeting,
Clemson, South Carolina

June 20
Agricultural Exam Meeting,
Pittsburgh, Pennsylvania

June 25–26
Surveying Exam Meeting,
Clemson, South Carolina

July 23–24
Civil Exam Meeting,
Clemson, South Carolina

August 18–21
NCEES Annual Meeting,
Denver, Colorado

NCEES
advancing licensure for engineers and surveyors

P.O. Box 1686
(280 Seneca Creek Rd)
Clemson, SC 29633 USA

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29633

Licensure
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PUBLISHED BY NCEES

Jerry T. Carter, Executive Director and Publisher

Keri B. Anderson, Manager of Corporate Communications

Jennifer L. Williams and Doug E. McGuirt, Editors

Ragenia P. Thompson, Graphics and Print Coordinator

ISSN NO. 1093-541X
VOLUME 14, ISSUE 3

POSTAL NOTICE
Licensure Exchange is published bimonthly by NCEES, 280 Seneca Creek Road, Seneca, SC 29678-9214.

Periodicals postage paid at Clemson, SC 29633.

Postmaster: Send address changes to *Licensure Exchange*, P.O. Box 1686, Clemson, SC 29633-1686