



CONTINUING EDUCATION FOR THE BRIDGE ENGINEER

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For a professional engineer, *continuing education* refers to activities and courses taken after the university degree has been earned. Whether because of internal motivation or because they are mandatory to maintain one's employment or license, these activities should expand an engineer's skills and knowledge. Keeping one's engineering knowledge current and relevant is especially important for protecting the public's health, safety, and welfare.

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Most often, engineers engage in continuing education activities or courses because it is necessary in order to maintain their professional license(s). Licensure is regulated at the state level, so each licensing jurisdiction (state board) has its own continuing education requirements. This is mandated either in the state's laws (as determined by the state legislature) or in the administrative rules (where the board is given authority by the legislature to establish its own rules). Most jurisdictions have continuing education requirements for maintaining a professional engineer's license. In August 2015, of the 56 U.S. engineering boards, 31 required 15 professional development hours (PDHs) per year, 8 required 12 PDHs, 6 required 1 to 11 PDHs, and 11 required none.

Because of ongoing efforts to promote licensure mobility and uniformity of

laws and rules among states, many boards are in the process of adjusting their rules to match the continuing professional competency (CPC) standard recommended by the National Council of Examiners for Engineering and Surveying (NCEES). The NCEES CPC standard requires a licensee to obtain 15 PDHs per calendar year, of which at least one PDH must be earned from a course or activity that focuses on engineering ethics, improving a licensee's business practice/operations, or advancing professional skills/practices as applicable to the practice of engineering. NCEES's *Model Rules* (which provides licensure boards with guidelines for engineering and surveying licensing laws and ethics) Section 240.30 provides a list of qualifying CPC activities and credits, including college courses, webinars, seminars, authoring papers, and patents. (For more on NCEES, see the sidebar on the next page.)

Engineers who hold licenses in multiple jurisdictions are tasked with keeping track of hours earned for different states and license-renewal periods. In recent years, the NCEES Committee on Education helped develop a CPC tracking system to streamline this process. Launched in June 2016, the system enables a licensee to track and report PDHs for any state in which he/she holds a license. A licensee can log courses, upload documentation such as certificates of completion, list course descriptions and learning objectives, and compare with the NCEES CPC standard. The licensee can track PDHs and see a side-by-side comparison with CPC requirements for each jurisdiction in which a license is held.

NCEES CPC tracking is a free service to licensees; an engineer just needs to visit NCEES's website and create a MyNCEES account. Several jurisdictions now

require their licensees to enter their CPC activities in the system. Also, the system enables a licensee to electronically send a CPC report to a board if required for renewal or audit.

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When considering courses/activities to engage in, an engineer should look carefully for signs of quality. The educational content of the activities should not just promote or market a particular company's products or services. Consider using the NCEES Committee on Education's list of attributes of quality CPC courses and activities, which should:

- Have a clear purpose with stated and relevant learning objectives
- Be current, technically accurate, and effectively designed
- Be reviewed periodically and updated as necessary, as well as show a development or revision date
- Preferably provide an opportunity for engagement between the learner and presenter or facilitator, or assess the learning outcomes during the course or at the end of the course
- Be earned at a rate of no more than eight PDHs in a 24-hour period
- Be developed by individuals qualified in the subject matter
- Be delivered by individuals qualified in the subject matter

Many engineering societies and organizations offer quality continuing education programs, and technical

institutes are no exception. Also, technical sessions are held at meetings and conferences such as the PCI Convention and National Bridge Conference, the ASBI Convention, and the PTI Convention; many of the sessions are allowed for continuing education credits and are indicated as such in the conference program. Attendance at these sessions may also be tracked and registered with a Registered Continuing Education Provider.

PCI's eLearning Center is the first education management system dedicated to the precast concrete and precast concrete structures industries. All courses offered through this system satisfy the continuing education requirements for engineers in all 50 states. PCI is currently creating web-based modules on bridge analysis and design through a partnership with the American Association of State Highway and Transportation Officials and funding by the Federal Highway Administration. It is recognized that a bridge engineer's knowledge is gained almost entirely on

NCEES

National Council of Examiners for Engineering and Surveying (NCEES) is the nonprofit organization that develops, administers, and scores the examinations used for engineering and surveying licensure in the United States. Comprised of 70 member boards (representatives of state, U.S. territory, and international engineering licensing boards), NCEES also helps to improve licensure mobility, to make it easier for engineers to obtain and maintain licenses in multiple states. At NCEES meetings and through committees, the boards work together to establish national *Model Laws*, *Model Rules* and licensing standards that boards can use in their own jurisdictions.

For more information, see <http://ncees.org>.

the job, with the possible exception of a bridge engineering course or two taken at the college level. To help engineers with zero to five years of bridge design experience, these modules will provide in-depth explanation on loads, load distribution, manufacturing methods, materials, prestress losses, extending spans, load rating, full-depth precast concrete deck panel design, bridge geometry, and

more. The modules will be released in the coming months, after a thorough review process. Many subject-matter experts have contributed hundreds of hours towards developing the modules' content, and PCI's Technical Activities Council is reviewing the modules for technical accuracy. Look for an article in a future issue of *ASPIRE*SM for more details. 



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