

# Improving Hands-on Construction Labs through NCCER Partnership

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Post-secondary construction programs provide technology, engineering, and management education to students who desire career pathways in construction and related fields. To achieve its mission, universities must foster the development of critical thinking skills, develop knowledge, and support innovation. This mission is accomplished in both the classroom and laboratory environment. The standard model for construction education includes hands-on, practical experience within a construction lab. This research proposes a partnership between post-secondary construction programs and the National Center for Construction Education and Research (NCCER) to improve and standardize the traditional construction laboratory experience.

Lab courses in four-year collegiate construction programs offer students the ability to participate in hands-on, practical verification of particular skills related to various areas, including but not limited to: building materials, surveying, MEP systems, soils, and others. This research establishes a framework for the incorporation of standardized performance verification of skills into construction lab courses by partnering with NCCER. The university and NCCER will implement and deliver content that covers conventional lab courses and accreditation requirements. NCCER offers standardized certificates in sixty craft training areas; each certificate is made up of multiple modules that must be successfully completed to obtain a certificate. The construction faculty will match modules to correspond to the content in the lab course. One academic credit hour for a lab is equivalent to fifteen hours of NCCER module content. The NCCER modules require performance verification of skills and equate to the activity of a university lab course. Construction lab course performance verification requires students to have their individual skills assessed by a NCCER certified instructor. The NCCER instructor's assessment can take place on campus or on a job site. If the construction program is also available in an online format, NCCER has certificate sites in all 50 states and 18 countries, and students can arrange to have their performance verified at their nearest location.

This framework implementation is currently underway in a four-year construction program. The process began by assessing NCCER module suitability in construction lab courses. Construction faculty were charged to determine which modules "fit" and the content corresponds within the construction lab course. The faculty members presented the chosen modules to the entire construction faculty for content verification and approval. The university surveyed the local, regional, and national industry for feedback on the modules chosen for the lab courses. Subsequently, all lab faculty have become certified NCCER educators in the provided certificate areas. From these NCCER modules, a list of required materials has been generated. Funding has been secured to resource the construction lab with the required equipment for the construction lab courses and NCCER modules. These materials and lab experiences will be accommodated in the existing physical construction lab. The expected deployment of the first university / NCCER construction lab is the fall semester of 2017. Future endeavors include hiring a full time NCCER lab coordinator, becoming an Accredited Training and Education Facility, and a comprehensive NCCER certificate facility center affiliated with university for industry certificate deployment. This research establishes an effective model for construction labs with a focus on continuous quality improvement for student enrichment and knowledge retention. Implementation of this model could establish the standard for construction lab education.

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