

# Program Review Executive Summary

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## Civil Engineering & Surveying

Majors Reviewed:

- *Civil Engineering Technology, B.S.*
- *Civil Engineering Technology, A.A.S.*
- *Surveying Technology, A.A.S.*

2015



The Civil Engineering Technology Bachelor of Science (BCT) and Associate of Applied Science (CT) majors and the Surveying Technology Associate of Applied Science (SU) major are all ABET accredited. A substantial amount of assessment has been done over the past three years as part of the accreditation process. A positive consequence of the assessments is an evolving, continuous improvement plan that has resulted in several proposed curriculum changes aimed at strengthening student learning outcomes. The assessment process, coupled with very strong industry input and an experienced faculty, has produced graduates who are valued by employers.

Not all curriculum recommendations were based solely on assessment results. Some of the recommendations were initiated through discussion with employers and advisory board members, as well as evaluation of peer program outcomes. The resulting recommendations will provide needed curricular realignment and upgrading.

The integration of course offerings from other programs within the school can provide students within the Civil Engineering and Surveying majors a more extensive knowledge base that is relevant to the construction industry. This integration would also allow students the opportunity to explore a more specific area of concentration that may provide increased employment options. Courses within Civil Engineering, Surveying, Architecture, Building Science, and Construction Management all have similar roots that provide a strong base, but each travels in a different direction.

The addition of a bachelor degree in Surveying is a possible consideration. The initial action will be to verify that an enrollment and employment market exists for such a program. At present, the enrollment figures for the Surveying AAS are flat. However, the addition of a bachelor-degree major may bring about revitalization, especially with the possibility of strong transfer possibilities. More investigation and research must be done prior to developing a concept proposal.

Actions are underway to replace existing surveying equipment. The upgrade to the fluid mechanics lab and the soils lab equipment will be part of future budget requests.

Retention and increased enrollment continue to be key department goals. Having very few programs with which to form articulation agreements provides a challenge for serving the transfer population. Continued efforts to seek out other Civil Engineering A.A.S. degrees for articulation purposes will be a priority over the next three years. If the Surveying B.S. degree comes to fruition, this would be another avenue for articulation agreements.

The ABET report provides assessment data that is reflective of the program goals and the ABET standards. In many of the outcomes and standards assessed, the set points have been met. For set points that were not met, modifications have

been made, and future reassessment will determine their effectiveness. Current curriculum is also being assessed for effectiveness and compatibility to today's technologies and industry standards. One of the major areas slated for curriculum revision is computer applications. Information modeling is becoming a strong component within the industry's technology portfolio. The need to incorporate these strategies, along with GIS and estimating, is prompting curriculum modification.

Recommendations:

- Investigate the feasibility of developing a four-year surveying technology degree.
- Pursue cross-pollination with other programs within the School of Construction and Design. Students may benefit from other course offerings within the school and vice versa. For example, many times in land development, the site development engineer and the building's architect do not understand each other's responsibility, which impacts their ability to coordinate efforts.
- Fine-tune the assessments being done for ABET. In particular, discontinue the use of a single test question as an assessment measure. As a minimum, use at least three questions for such purposes. Also assure that new student outcomes are mapped to the appropriate ABET criterion.
- Assess the possibility of adding diversification to the BCT program by adding higher-level course offerings.
- Upgrade the fluid mechanics laboratory and soils laboratory equipment.
- Undertake timely replacement of the total station surveying equipment.
- Cooperate in the development of articulation agreements with other programs, such as the Penn State Wilkes-Barre surveying program.