JAMES K. NELSON, JR., PH.D., P.E.

CURRENT POSITION:

Dean of Engineering and Computer Science

BIOGRAPHICAL SKETCH

Dr. James K. Nelson received a Bachelor of Civil Engineering degree from the University of Dayton in 1974. He received the Master of Science and Doctor of Philosophy degrees in civil engineering from the University of Houston. During his graduate study, Dr. Nelson specialized in structural engineering. He is a registered professional engineer in four states, a Chartered Engineer in the United Kingdom, and a fellow of the American Society of Civil Engineers. He is also a member of the American Society for Engineering Education and the SAFE Association.

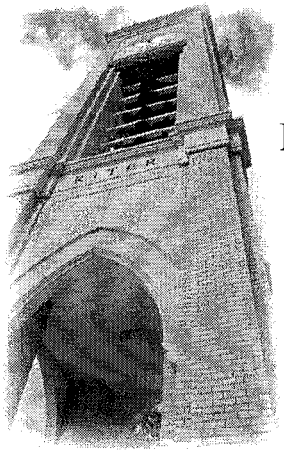
Prior to receiving his Ph.D. in 1983, Dr. Nelson worked as a design engineer in industry and taught as an adjunct professor at the University of Houston and Texas A&M University at Galveston. In industry he was primarily involved in design of floating and fixed structures for the offshore petroleum industry. After receiving his Ph.D., Dr. Nelson joined the civil engineering faculty at Texas A&M University. He joined the civil engineering faculty at Clemson University in 1989 as Program Director and founder of the Clemson University Graduate Engineering Programs at The Citadel and became Chair of Civil Engineering in 1998.

In July 2002, Dr. Nelson joined the faculty at Western Michigan University as Chair of Civil and Construction Engineering. At Western Michigan he started the civil engineering undergraduate and graduate degree programs and also chaired the Departments of Materials Science and Engineering and Industrial Design. In summer 2005 he joined the faculty at The University of Texas at Tyler. At UT Tyler he was the founding chair of the Department of Civil Engineering and instituted the bachelor's and master's degree programs. In 2006 he became the Dean of Engineering and Computer Science.

Dr. Nelson's primary technical research interest is the behavior of structural systems. For almost 25 years he has been actively involved in evaluating the behavior of free-fall lifeboats and the development of analytical tools to predict that behavior. His research has formed the basis for many of the regulations of the International Maritime Organization for free-fall lifeboat performance. Since 1998, Dr. Nelson has served as a technical advisor to the United States Delegation to the International Maritime Organization, which is a United Nations Treaty Organization. In that capacity, he is a primary author of the international recommendation for testing free-fall lifeboats and many of the international regulations regarding the launch of free-fall lifeboats.

He has authored many technical papers that have been presented in national and international forums and co-authored three textbooks. Dr. Nelson chaired a national committee of the American Society of Civil Engineers for curriculum redesign supporting the civil engineering body of knowledge. He is actively engaged in developing strategies for enhancing the STEM education pipeline in Texas and nationally, and has testified before the Texas Senate in that regard. He served on a committee of the Texas Higher Education Coordinating Board to develop a statewide articulation compact for mechanical engineering. He also served on the Texas State Board of Education committee preparing the standards for career and technical education. He is currently serving on the Engineering Education Task Force of the National Council of Examiners for Engineering and Surveying.

Facilitating the Community College Pathway to an Engineering Degree



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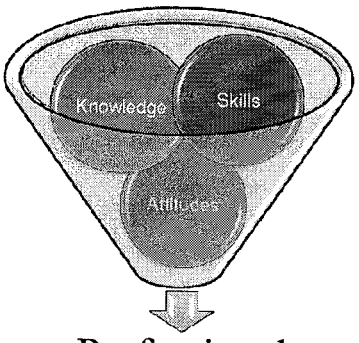
Engineering Body of Knowledge



Professional Competency

A body of knowledge is the knowledge, skills, and attitudes obtained through education and experience that is necessary for responsible charge in engineering practice.

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The Concern

Courses with the same title and description should have the same content and rigor, but . . .

rightfully or wrongfully, the rigor and content of courses at community colleges continues to be questioned.

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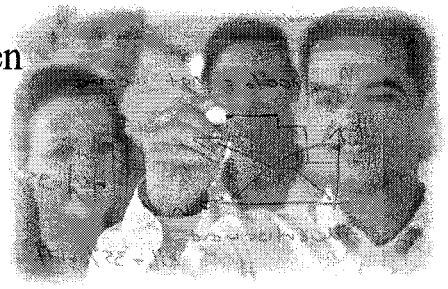
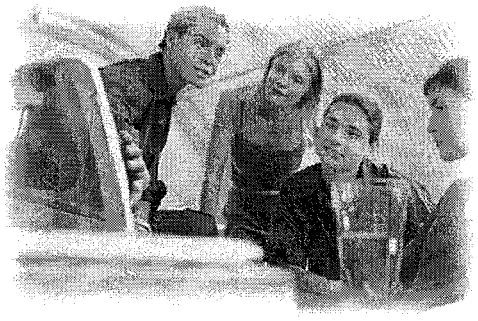
Solutions for Successful Migration

- Ensure alignment of courses that can transfer from 2-year to 4-year institutions
- Develop voluntary state-wide articulation compacts
- Use an outcomes-driven associate's degree as the migration vehicle



Alignment of Technical Courses

- Courses were identified that are common in most baccalaureate engineering degrees
- The descriptions for these courses were standardized
- Expected student learning outcomes were specified

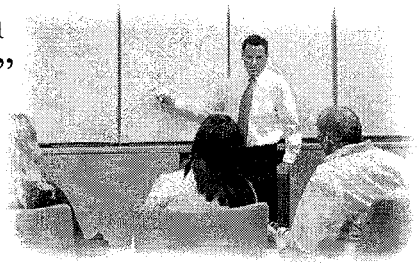


State-Wide Articulation Compacts

- Participating institutions agree to teach technical courses so that the student learning outcomes are achieved
- Participating institutions agree to assess achievement of the student learning outcomes
- Participating institutions agree to accept the courses as part of the degree

ABET Associate's Degree

- Community colleges offer an ASAC/ABET associate's degree containing a prescribed body of knowledge
- 4-year institutions use this degree as the entry criterion into the baccalaureate program
- 4-year institutions publish a "completion curriculum" to fulfill the needed body of knowledge



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The Resulting Benefit to Students

Students are presented a coherent set of courses placing them on a path to timely completion of an EAC/ABET baccalaureate degree, helping them to better navigate the precipitous path to a degree.

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