The Future of Engineering Education:
What 21st Century Engineers and Scientists Need to Be Successful

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In 2004 and 2005, the National Academy of Engineering published the *Engineer of 2020: Visions of Engineering in the New Century* and the *Educating the Engineer of 2020: Adapting Engineering Education to the New Century*. The intent of these publications were: 1) to identify attributes and abilities engineers needed to perform well in a world driven by rapid technological advancements, national security needs, aging infrastructure in developed countries, environmental challenges brought about by population growth and diminishing resources; 2) to promote the creation of new disciplines at the interfaces between engineering and science and to provide recommendations to guide engineering educators, employers, professional societies, and government agencies as they reengineer the "system of systems," the engineering education process.

When the Engineer of 2020 arrived on our campuses in the Fall of 2016 what types of learning experiences, curriculum, pedagogical approaches and professors met them? It is well-documented that change occurs slowly in educational settings; a pace that lags significantly behind technological changes. Yet we as academics continuously strive to create experiences for our students to prepare them for global competition. If we are to be successful in this endeavor, we must adapt to new trends and educational approaches so that our students are armed with the necessary tools needed for the world they will inherit and lead and not the one that exists today.

This presentation will describe: 1) the purpose research fulfills in transforming the overall educational experience, 2) ideas for engineering faculty (tenure track and professional) to partner with researchers from other disciplines to shape our field and transform students' educational experiences, 3) how systems thinking can be used to transform education, and finally, 4) What we, the faculty, need to do for our students who will likely still be active in their professional roles in the year 2060 to ensure they are successfully launched into a professional world that is difficult to predict today.

Biography

Dr. Stephanie G. Adams is the 5th Dean of the Eric Jonsson School of Engineering and Computer Science at the University of Texas, Dallas and Past President of the American Society of Engineering Education. Dr. Adams has held faculty and administrative positions at Old Dominion University, Virginia Tech, Virginia Commonwealth University and the University of Nebraska-Lincoln.

Dr. Adams research interests include: Broadening Participation, Faculty and Graduate Student Development, Teamwork and Team Effectiveness, and Quality Control and Management. In 2003, she received the CAREER award from the Engineering Education and Centers Division of the National Science Foundation. Dr. Adams is a leader in the advancement and inclusion of all in science, technology, engineering, and mathematics (STEM) education. She is the recipient of numerous awards including the 2013 Alumni Achievement Award from North Carolina A&T State University.

Dr. Adams is an honor graduate of North Carolina A&T State University, where she earned her BS in Mechanical Engineering, in 1988. In 1991, she was awarded the Master of Engineering degree in Systems Engineering from the University of Virginia. She received her Ph.D. in Interdisciplinary Engineering from Texas A&M University in 1998, where she concentrated on Industrial Engineering and Management.