

SELECT REMARKS ABOUT ENGINEERING FOR NATIONAL ENGINEERS WEEK 2012

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Pursuing a career in engineering is a noble and difficult calling. It is difficult not only because of the subject matter or the need for a deep and solid grounding in math and science. Engineering is difficult because it demands that its practitioners—that each of us—be optimists.

Engineers are makers and builders—thinkers who harness matter, energy, and information to design and develop new capabilities that have not existed before. Engineers are dreamers who insist that their dreams be implementable in the messy and complex space of the real world in which we live and work. Engineers, in their professional hearts, believe that applied science and a disciplined technical approach can be applied to create change and to make this world a better place. This belief that the state of the world can be improved is what makes engineering a fundamentally optimistic endeavor.

Our country needs engineers more than ever, particularly those with the ability to think across traditional disciplinary boundaries, to reason about dynamic and complex entities, and to analyze and understand the interdependence of the components that make up large integrated systems.

The mission of the U.S. Department of Defense is straightforward: to protect our national security and to generate, equip, and support the military forces to deter war and prevail in conflict if necessary.

The Department is made up of approximately **2.5 million men and women in uniform, 1.4 million soldiers, sailors, marines, and airmen on active duty**, and an additional **1.1 million men and women in our guard and reserve forces**. They are supported by a **civilian workforce of more than 718,000 employees**.

The scope of the DoD Engineering enterprise is equally vast. Our engineering capacity is critically important to the Department of Defense, in fact, the scale and scope of the Department's engineering efforts is staggering. I believe the Department, with its component military services and agencies, is the largest engineering enterprise in the world, with an engineering workforce made up of more than **100,000** military and civilian engineering professionals. To break down this number further, the Department employs **over 35,000** engineers in civil engineering and construction, **74,000** Non-construction engineers, and of those non-construction engineers, **over 39,000** make up our acquisition certified systems engineering workforce involved in directly supporting the design, development and delivery of military systems. The Department's engineering workforce represents a remarkable investment of human capital.

Over the last two decades, an increasing fraction of U.S. combat power has been delivered by increasingly complex, integrated, high-technology systems and capabilities. This transformation has occurred at every echelon, from our national space capabilities to the individual dismounted infantryman. Today in Afghanistan the U.S. Marine Corps has more than 2,000 robots, one for every 50 marines in theater. These complex integrated systems present new and unique challenges to the Department's engineering teams.

With the scale of our engineering activity, the Department provides an excellent environment in which to identify emerging challenges to our engineering practice. We are addressing key engineering challenges including managing complexity, managing risk, and growing future engineering leaders.

One of our greatest opportunities is to embrace the importance and relevance of engineering in the 21st century and to commit ourselves to encourage others to see our profession as central to solving the key challenges of our time.

Our challenge is to take our professional tools and apply them to the problems that matter, to share our engineering optimism with the larger community, and to help our Nation remain a strong and respected leader and a force for good in the world.

For more information about DoD Systems Engineering, visit <http://www.acq.osd.mil/se>