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CSA STEM Partnership-Building Forum

Dr. Ray Haynes-June 28, 2006

- **NGC is 130,000 people, 45 countries, \$30+ Billion, with thousands of openings for STEM workers, annual external education investment is \$5+ Million (colors of money vary), SPACE University for internal training, internships, fellowships, etc.**
- **Key aerospace/DOD workforce Issues: U.S. Citizenship, ITAR and security clearances (faculty and students)**
- **Resources are everywhere:**
 1. **Engineer Quality: www.abet.org (characteristics/certification for 70+ years for 2700 programs and 550 universities/colleges)**
 2. **Engineer of the Future: www.national-academies.org (Engineer of 2020 and Educating the Engineer of 2020)**
 3. **STEM Statistics: www.asee.org (networking and publications)**
 4. **STEM Programs/Funding: www.nsf.org (science and engineering indicators reports and \$6 Billion/annual budget)**

ABET Excerpt:

Engineering programs must demonstrate that their students attain:

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) an ability to function on multi-disciplinary teams
- (e) an ability to identify, formulate, and solve engineering problems
- (f) an understanding of professional and ethical responsibility
- (g) an ability to communicate effectively
- (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- (i) a recognition of the need for, and an ability to engage in life-long learning
- (j) a knowledge of contemporary issues
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.