

# IEEE Systems Council

## Workforce Development Technical Committee

Nov 5, 2015, 3.40pm Eastern

Present: Richard Millham, Roger Oliva

1. Update on Systems Engineering Conference in Rome in September
  - a. Workshops received full support of Systems Council.
  - b. Due to workforce constraints, only one out of ten possible workshops could be held. Advance notice was limited
  - c. The workshop held was successful in terms of recommendations given and attendance was high
  - d. Recommendations: develop a procedure to engage industry; evaluate workshop in terms of pros/cons and based on evaluation, develop recommendations for change
2. Tech Committee: focus on international transport design, security and privacy, and risk
  - a. All three focus areas have aspects that we are interested in
3. Process template:
  - a. Suggest a “quick and dirty” template at first to determine what is missing. With this knowledge, refine template
  - b. Fundamental template (establish goal, objectives, metrics for each specific goals, and assess metrics)
    - i. Bring in subject matter experts to review goals, objectives and metrics for appropriateness. Key: bring experts in early
    - ii. Determine risk alternatives
    - iii. Evaluate and analyse alternatives, in terms of metrics, and make suitable recommendation(s)
    - iv. Process may find gaps in knowledge (ex: electric airplanes entail battery issues that must be addressed first)
    - v. Desire product in the end which can be modified, using different experts, for the experienced expert, career professional, undergraduate, and K-12
    - vi. Gaps useful for further research by postgraduates; gaps useful for undergrad curriculum in determining how to revise or areas to keep in mind when engaging with this area
  - c. Adapt and apply fundamental template to discipline area and local context
4. Engineering: although number of areas differ (Univ of Virginia: 33; Virginia Tech: 35 areas), there are areas with a large degree of overlap with other areas
  - a. Split up areas by committee members
  - b. Engage subject experts
  - c. Develop templates
5. Workshops: several weeks before: know who is subject experts and engage with them before workshop to develop template
  - a. Follow template in developing workshop
6. Workshop and interaction with subject matter experts can produce a dense amount of valuable knowledge. Suggestion: consider developing a journal to highlight results of work

7. Possible area: neuroscience conference. Roger is willing to attend provide support by committee members is given
  - a. Help develop goals and objectives for workshop
  - b. Recruit product creators or develop products
8. Next meeting: to be determined

## **Appendix:**

Engineering Areas:

VirginiaTech (35)

Aerospace, Aeronautical and Astronautical/Space Engineering

Agronomy and Crop Science

Animal Sciences, General

Architecture

Biochemistry

Biology/Biological Sciences, General

Chemical Engineering

Chemistry, General

Civil Engineering, General

Computer Engineering, General

Computer Science

Computer and Information Sciences, General

Construction Management

Dairy Science

Economics, General

Electrical and Electronics Engineering

Engineering Mechanics

Environmental Studies

Food Science

Forestry, General

Geology/Earth Science, General

Horticultural Science

Industrial Engineering

Industrial and Product Design

Information Science/Studies

Landscape Architecture

Materials Engineering

Mathematics, General

Mechanical Engineering

Meteorology

Mining and Mineral Engineering

Ocean Engineering

Physics, General

Poultry Science

Statistics

University of Virginia (33)

Astronomy (BA, MS, PhD)

Biology (BA, BS, MA, MS, PhD)

Chemistry (BA, BS, MA, MS, PhD)

Economics (BA, MA, PhD)

Environmental Sciences (BA, BS, MA, MS, PhD)

Mathematics (BA, MA, MS, PhD)

Physics (BA, BS, MA, MAPE, MS, PhD)

Aerospace Engineering (BS)

Biomedical Engineering (BS, ME, MS, PhD)  
Chemical Engineering (BS, ME, MS, PhD)  
Civil Engineering (BS, ME, MS, PhD)  
Computer Engineering (BS, ME, MS, PhD)  
Computer Science (BS, MCS, MS, PhD)  
Electrical Engineering (BS, ME, MS, PhD)  
Engineering Physics (MEP, MS, PhD)  
Engineering Science (BS)  
Materials Science and Engineering (MMSE, MS, PhD)  
Mechanical Engineering (BS)  
Mechanical and Aerospace Engineering (ME, MS, PhD)  
Systems Engineering (BS, ME, MS, PhD)  
Biochemistry and Molecular Genetics (PhD)  
Biological and Physical Sciences (MS)  
Biophysics (PhD)  
Cell Biology (PhD)  
Clinical Research (MS)  
Experimental Pathology (PhD)  
Microbiology (PhD)  
Neuroscience (PhD)  
Pharmacology (PhD)  
Physiology (PhD)  
Architecture (BS, MAr)  
Landscape Architecture (MLAr)  
Urban and Environmental Planning (BUEP, MUEP)

