Electrical Engineering and Systems Science and Mathematics: Some Merger Considerations

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Presentation to EE and SSM Faculty 06/27/02

- Accredited Systems Programs
- Preliminary Analysis:
  - CWRU Merger
  - Penn Merger
Ad Hoc Committee on Electrical and Systems Engineering at Washington University

- Appointed by Dean May 22, 2002
  R. S. Indeck, J. A. O’Sullivan, H. Mukai, B. Ghosh

- Met twice as a committee

- J.A.O’S. and R.S.I. Presentation to and Discussion with SSM Faculty June 5, 2002
ABET Accredited Degree Programs:
Systems

Industrial and Systems Engineering Degrees
- Alabama in Huntsville, The University of
- Florida, University of
- Michigan-Dearborn, University of
- Ohio State University, The
- Ohio University
- San Jose State University
- Southern California, University of
- Virginia Polytechnic Institute and State University
- Youngstown State University
Accredited Systems Engineering Programs

- Air Force Institute of Technology
- Arizona, University of
- Case Western Reserve University (S&CE)
- George Mason University
- George Washington University, The (SAE)
- Oakland University
- Pennsylvania, University of (SSE)
- Rensselaer Polytechnic Institute (CSE)
- United States Military Academy
- United States Naval Academy
- Virginia, University of
- Washington University (SSE)

- Other: ISR at University of Maryland, international
Preliminary Merger Analysis

- Motivation, context, execution, and results of analogous mergers at CWRU and Penn
- Similarities and differences to Washington U
- Preliminary analysis
- Seek input from SSM and EE faculty → What do we want to know?
Electrical and Systems Engineering at the University of Pennsylvania

- Formed committee 1.5 years ago
- Equal representation between two departments
  - Electrical Engineering (total around 12-13)
  - Systems Engineering (total around 9)
- Committee submitted a report last fall
- Merger in February 2002
- New hire in Spring 2002
- Chair search ongoing
• **Electrosciences**
  electromagnetics and photonics, sensors and MEMS, VLSI, and nanotechnology

• **Systems Science**
  signal processing, optimization, simulation, control and cybernetics, complex adaptive systems, stochastic processes, and decision sciences.

• **Network Systems and Telecommunications**
  networks, communications, logistics and manufacturing, transportation, and infrastructure engineering.
1997 Moved Computer Engineering, Computer Science, and Systems & Control Engineering Programs adjacent to EE

2000 Merged three departments into EECS (total 30+)

2000 External Chair Search

2001 B. Ross Barmish, Chair from U. Wisconsin

2002 Four undergraduate programs: EE, CoE, CS, SE

• Biorobotics and computational intelligence
• Automation and robotics
• Solid-state devices and MEMS
• Global and large-system modeling
• Software engineering
• Databases and multimedia.
Applied Artificial Intelligence
Automation, Sensing, Actuation and Machine Intelligence
Circuits, Signal Processing, and Computer-Aided Design
Computational Neuroscience and Autonomous Robotics
Control Applications
Control And Filtering Theory
Database Systems
Design Methodologies and Design Automation
Electromagnetics, High Frequency Communications and Devices
Fault Detection And Diagnosis
Global Systems Analysis and Sustainable Development
Identification And Adaptive Control
Intelligent Systems-Neural Nets And Fuzzy Logic
Mathematical Modeling And Systems Analysis Of Global Change Phenomena
Neuro-Mechanical Systems
Optimization And Decision Theory And Methods
Semiconductor Materials and Devices
Software Architecture and Design
Software Testing and Reliability
Ultrasonic Monitoring of Fatigue Specimens In-Situ
Faculty Search From 2001-2002

Nord Endowed Chair in Systems and Control Engineering
Positions in Electrical Engineering
Jennings Chair in Computer Engineering
Positions in Computer Engineering
Positions in Computer Science
Preliminary Merger Analysis

- University of Pennsylvania
  - Similar name and alignment to that proposed at WU
  - Similar University (with dominant School of Medicine), School (SEAS), resource pressures (biomedical engineering, computer science)
  - Different nature of systems department
  - Ongoing process

- Case Western Reserve University
  - Similar systems group, controls emphasis
  - Different alignment (EECS), different degrees (4)
  - Merger “complete” with ongoing hiring, blending disciplines

- What information is important to us?