



# Systems Engineering Programs in Washington DC

*Orientation Session*

*1 May 2015*

Dr. Wilson N. Felder

Director, Washington Operations and

Distinguished Service Professor

School of Systems and Enterprises (SSE)



# Welcome!



## Stevens Faculty here today:

Dr. Wilson N. Felder, DC Ops Director and Professor

Dr. Mitchell Kerman, SERC Dir. of Program Development, and Professor

Dr. Richard Turner, SERC Researcher and Professor

**Please fill out a Student Contact form**, and/or leave us your business card

**Please help yourself to coffee**, tea or a soft drink

**Please help yourself to the literature** on the back counter



# Founding of Stevens Institute of Technology

THE INNOVATION UNIVERSITY



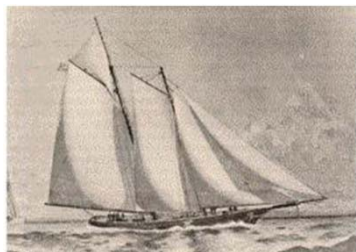
## Col. John Stevens III (1749-1838)

- In 1800, bought land that became the city of Hoboken
- Pioneered the steam transportation with 2<sup>nd</sup> son Robert Livingston
- Robert invented the T-rail and the cow-catcher
- Robert helped pass the first U.S. patent laws



## Edwin A. Stevens (1795 – 1868)

- 3<sup>rd</sup> son of Col. Stevens, founded Stevens in 1870
- Stevens family made fortune in transportation: toll roads, ferries and railroads



Family founded  
the America's Cup



ASME launched  
at Stevens  
in 1880



Gantt graduated  
from Stevens  
in 1884



# Topics

- The Systems Engineering Certificate
- Academic Administration
- Why Stevens in DC?
- Questions and Discussion



# The Systems Engineering and Architecting Certificate





# The System Engineering and Architecting Certificate

- Four Courses
  - SYS 625 – Fundamentals of Systems Engineering
  - SYS 650 – System Architecture and Design
  - SYS 605 – System Integration
  - SYS 612 – Program Management
- These constitute the core course material for the ME in Systems



# Format and Logistics

- Each course includes 32-35 hours of class time plus an individual project
- Friday and Saturday from 0800 – 1700 (with lunch and breaks)
- One month interval followed by a second Friday/Saturday session
- Individual project due seven weeks after last class session
- Usually includes in-class group work, videos, and guest lectures
- Copies of instructor's slides will be provided on Canvas, Stevens' online course management system
- Textbooks will be available on site
- WiFi connectivity provided, students are encouraged to bring a laptop
- Lunch on your own in the Ronald Reagan Building (RRB) food court
- Parking validation will be provided for students in RRB garage



# Academic Administration





# Academic Administration: Admission and Registration

- For all off campus programs (meaning outside Hoboken, NJ) academic administration is handled by the Corporate Care Office
- Jessica Maj is the student Point of Contact (and the ultimate authority on any administrative question)
- Admission cannot be handled on line: Jessica will provide the application documents
- For the Certificate program, a written application along with a full set of college transcripts is required
- Students wishing to enroll in the PhD program must have a prior Master's degree and complete the GRE exam (waivers may be sought)
- Once the application is approved, Jessica will handle your enrollment and registration for the first (and subsequent) courses



# Academic Administration: Tuition, Expenses, and Payment

- These are also handled by the Corporate Care Office
- Tuition for this certificate program is \$4,200 per 3 credit course
- Cost of textbooks is in addition to tuition and varies by course
- The tuition rate is frozen as long as the student remains enrolled in the program in good standing
- Payment is due 30 days after the student's grade is recorded for the course
- The program is set up for individual student enrollment with the expectation that the students will be reimbursed by their employers using an SF-182 or similar reimbursement form
- Agencies and companies that wish to make an arrangement for direct group payment to Stevens should contact the Corporate Care Center to make these arrangements.



# Why This Program is Right for You



# This Program Leads to an Engineering Degree

- Most System Engineering Programs readily accessible in the DC area offer a Master of Science degree
- Stevens offers a Master of Engineering in Systems
- If you want to protect and extend your undergraduate engineering degree, or if you want to add a graduate level engineering credential to a previous undergraduate degree in science or math, this is the right program for you.



# This is a Face to Face Program

- There are many programs available remotely, on line or via video conferencing
- The experience of sharing physical space with the instructor and your fellow students brings a richness and depth that is simply not available in remote formats
- The interaction and networking with fellow students, all of whom are high performing mid-career professionals like yourself, is invaluable
- The ability to work in a group in real time and face to face, brings added strength to the learning experience
- Besides, some of us just work better in person than remotely: if you are one of us, then this program is for you.



# Stevens Faculty is Unique

- A sweeping claim, of course, but our open academic model strives to hire Faculty for our System Engineering programs who have “walked the walk” in industry or Government for many years, and ALSO have the academic research chops to bring cutting edge theoretical understanding to the teaching of systems engineering.
- The Stevens approach brings a rich lode of real-life stories: examples of the application of SE principles to real projects across industry and government in many fields



# Faculty Example

## ABBREVIATED BIOGRAPHY WILSON N. FELDER



Dr. Wilson N. Felder is the Director of Washington Operations and a Distinguished Service Professor in the School of Systems and Enterprises at Stevens Institute of Technology. In 2012 he retired as the 15<sup>th</sup> Director of the FAA's William J. Hughes Technical Center, in Atlantic City, NJ, the Nation's principal Federal Laboratory for engineering, research, development, test, and evaluation of air transportation systems. In that position, Dr. Felder served as the FAA's Director of Research, Development, Test, and Evaluation, and also co-chaired the Aeronautics Science and Technology subcommittee of the National Science and Technology Council, OSTP. Dr. Felder is a Fellow of the American Institute of Aeronautics and Astronautics, and served on the board of AIAA for ten years, first as Director of the Aircraft Group, and later as Vice President, Standards. He is currently a member of the Board of the International Test and Evaluation Association (ITEA). An

instrument rated Private Pilot, Dr. Felder retired from the Naval Reserve with the rank of Commander. He holds Bachelor's, Master's and PhD degrees from the University of Virginia. His research interests include the theory of complex systems; heuristics for the design, development, and operation of complex systems; and strategies for complex system test and evaluation.



# Faculty Example (Continued)

## *Recent Research Publications:*

2015 Baldwin, W.C., and Wilson N. Felder, "Mathematical Characterization of Complex System Attributes," Chapter 10, in Franz-Josef Kahlen, et al, Editors, *Transdisciplinary Approaches to Complex Systems*, Springer, scheduled for publication, Fall 2015.

2015 Felder, Wilson N., "Managing the National Test and Evaluation Infrastructure: Myths and Opportunities," *Journal of ITEA*, March 2015, Volume 36, Number 1, pp.14-17.

2015 Wing, Adam, Wilson N. Felder and Robert Cloutier, "Modeling Airport Ramp Operations at a Large International Airport," *Aviation 2015 Forum*, Dallas, TX, AIAA Paper Control ID#: 2150806, scheduled for presentation June 25<sup>th</sup>, 2015, 5pp.





# The Systems Engineering Research Center (SERC)

- The *only* Department of Defense University Affiliated Research Center in Systems Engineering
- A Stevens led consortium of 20+ Universities
- Easy access to advanced research opportunities for Stevens graduate students
- Additional advanced educational opportunities offered through SERC Doctoral Fellows Program
- Continued stream of cutting edge research results lends vibrancy and relevance to Systems Engineering course materials



# A Unique Opportunity for Students with a Prior Master's Degree

- To our knowledge, Stevens is the only school that offers a PhD in System Engineering WITHOUT a residency requirement
- For students who already hold a Master's degree, the coursework requirement for the PhD is identical to that for the ME degree (the additional credits required will be earned through dissertation research)
- Students take the same sequence of core courses (the Architecture and Design Certificate) plus some of the same electives as their ME candidate classmates
- PhD students are required to take SYS 684 (Systems Thinking) and SYS 710 (Research Methods), plus a sequence of SYS 900 (Dissertation research) courses.
- The Stevens dissertation practice is also well suited to working professionals: instead of the traditional "book", the Stevens SE dissertation normally consists of a portfolio of academic papers with a short summary introduction.



# Review of Opportunities

Stevens DC Certificate Program

System Engineering and Architecting

Other Certificates

One-off electives such as SYS 660, SYS 679, and others as desired

Masters in Engineering

PhD, including SERC Doctoral Fellows

Georgetown Masters in Professional Studies SEM Program

# Questions and Discussion





**STEVENS**  
INSTITUTE *of* TECHNOLOGY  

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