Course Offering  SPRING 2011

System-of-Systems Modeling & Analysis
(offered at a distance via Engineering Professional Education, click here)

AAE 590
(MWF 11:30 – 12:20)

Course Instructor: Dr. Daniel DeLaurentis
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Course Description:
The primary focus of this course is on understanding, modeling, and analyzing an emerging class of problems called System-of-Systems: large-scale, interdisciplinary problems comprised by collections of heterogeneous, complex systems that occasionally operate independently. Lectures will frame the problem class and present novel modeling methodologies. Team projects will be undertaken in which students explore new methods for analyzing SoS problems. Past projects have addressed a wide variety of domains, including air and ground transportation, space exploration, defense capabilities, energy independence, operations complexity, etc.

Topics:
- Distinguishing traits and structure of Sys-of-Sys problems
- Lexicon, taxonomy, and relevant system engineering principles
- Modeling approaches, such as:
  - Complexity theory and complex adaptive systems
  - Modern network science
  - Probabilistic robust design
  - Agent-based modeling
- Architecture analysis through exploratory simulation

Prerequisites:
- Graduate or Senior-level standing (latter with consent of instructor)
- Knowledge of probability & statistics is preferred
- Students from Engineering, Management, Computer Science, Physics, Economics, Mathematics and other majors are welcome!

For more information, please visit:
https://engineering.purdue.edu/ProEd/courses/credit_courses?course=AAE59000&semyr=SP2011&crn=52288