Systems Engineering

Systems Engineering

Designing Integrated Solutions to Complex Problems

All Systems Go!
Mahan Hall
West Point, NY 10996
www.dean.usma.edu/se

Department of Systems Engineering

Systems Engineering: *Designing Integrated Solutions to Complex Problems*

Systems engineering is an interdisciplinary approach to solving complex problems through the development of integrated system solutions. It focuses on defining customer needs and documenting requirements early in the development cycle then proceeding with designing, validating and implementing innovative solutions while considering both the business and the technical needs of all stakeholders. Systems engineers lead a team effort that integrates various disciplines through a structured development process that begins with an initial concept and leads ultimately to system production and successful operation.

The Systems Engineering program is accredited by the Engineering Accreditation Commission of ABET: www.abet.org.

The SE Program. A sample SE 8TAP:

Yearling Year	Cow Year		Firstie Year	
Spring	Fall	Spring	Fall	Spring
SE301 Intro to SE	SE387 Deterministic Models	SE388 Stochastic Models	SE402 Capstone Design I	SE403 Capstone Design II
	SE375 Statistics for Engineers	SE385 Decision Analysis	EM411 Project Mgt.	EM420 Production Operations Mgt.
	MC300 Fund. of Eng. Design	SE370 Computer Aided SE	MC311 Thermal Fluids I	EE301 Fund. of Ele. Eng.
	Sub-Discipline Elective I	Sub-Discipline Elective II	Simulation Elective	Sub-Discipline Elective III
				SE400 Professional Eng. Seminar*

*SE400 Professional Engineering Seminar (1 credit) is taken second semester of the Firstie Year to prepare for the Fundamentals of Engineering Exam.

Simulation Electives

EM481 Systems Simulation
SM484 System Dynamics Simulation
SE485 Combat Modeling

Sub-Discipline Electives

Human Factors	Simulation Systems	Mathematical Systems	Information Systems
PL386 Experimental Psychology	EM481 Systems Simulation	EM381 Engineering Economy	CS301 Fund. of Computer Science
PL391 Sensation, Perception & Psychophysics	SM484 System Dynamics Modeling	MA366 Vector Calculus & Intro to PDES	IT305 Theory and Practice of Military IT Systems
PL392 Cognitive Psychology	SE485 Combat Modeling	MA371 Linear Algebra	CS350 Database Design & Implementation
PL394 Anthropometrics & Biomechanics	EV398 Geographic Info Systems	MA381 Nonlinear Optimization	EE360 Digital Computer Logic
PL475 Human Computer Interaction	MA476 Mathematical Statistics	MA386 Intro to Numerical Analysis	EV398 Geographic Information Systems
PL485 Human Factors Eng.	MS385 Sustaining the Force	MA391 Mathematical Modeling	IS450 Principles of Distributed Application Eng.
		MA476 Mathematical Statistics	IT383 User Interface Development
		MA490 Applied Probability from Math, Science & Eng.	IT460 Information Warfare
			SM482 Supply Chain Mgt.

What Our Alumni Say...

"...I am often asked how it is that a small engineering company can span a number of diverse industries. My typical answer: Systems Engineering = Systems Engineering. Regardless of the industry, if you define a system as that of a black box with inputs, outputs, constraints and an environment, you can solve for anything. It doesn't matter if its an online share trading engine, a multi-fuel cogeneration power station, or the processing infrastructure for an iron ore mine site. They all can be defined as a "system".

-**Stephen Inouyne SE'90**, *Managing Director at Veritas Engineering*

"...Knowing the theories for solving engineering and mathematical problems aided me in making difficult decisions logically and with great accuracy."

- **Kerwin Smith** *'99, Financial Times, Theoretical Study is a Preparation for Dealing with the Unexpected, Jan. 30, 2006*

Real World Problems. Real World Clients. Real World Application.

Make a Decision.

- Systems Engineer named '**Best Job In America**' by CNN Money Magazine (2009)
- DSE offers a wide variety of AIAD opportunities
- Get involved with the SE Club
- Graduate with Honors from SE
- Take the Fundamentals of Engineering (FE) exam - the first step to becoming a licensed Professional Engineer (PE)
- Prepare yourself to be a *problem solver* in service to the Army and our nation

Join Systems. Contact us today to learn more:

SE Director
LTC Dan McCarthy - daniel.mccarthy@usma.edu
2014 Academic Advisor
CPT Christy Licklider - christy.licklider@usma.edu