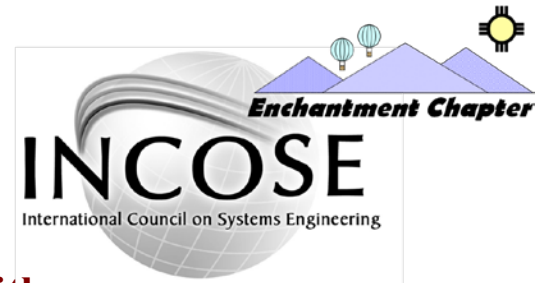


Fall TUTORIAL

Tradeoff Studies, Techniques and Biases



Led by **Eric Smith**

Friday, 7 November 2014, 9:00 a.m. – 2:00 p.m.
Workforce Training Center, Albuquerque, NM

Brought to you by the INCOSE Enchantment Chapter, Albuquerque NM

Tutorial: Trade Studies, Techniques and Biases

Trade Studies are broadly recognized and mandated as *the* method for simultaneously considering multiple alternatives with many criteria, and as such are recommended by several standard bodies including INCOSE and ISO/IEC 15288 Decision Management Process, and SEI's Capability Maturity Model Integration (CMMI) Decision Analysis and Resolution (DAR) process. Tradeoff studies, which involve human numerical judgment, calibration and data updating, are often approached with under confidence by analysts and are often distrusted by decision makers. The decision-making fields of Judgment and Decision Making, Cognitive Science and Experimental Economics have built up a large body of research on human biases and errors in considering numerical and criteria-based choices. Relationships between experiments in these fields and the elements of tradeoff studies show that

tradeoff studies are susceptible to human biases: this tutorial indicates ways to eliminate the presence, or ameliorate the effects of mental mistakes on tradeoff studies.



Participants will receive: a) Instruction: A variety of creative and analytic tools will be introduced. Examples of pitfalls and practical challenges will be discussed in class. b) Course Notes: Each student will receive a set of course notes for reference. c) Practice: Students will have an opportunity to practice fundamental Trade Study skills in classroom exercises.

You should attend this course if you:

- Are assigned to develop trade studies
- Work on teams that integrate criteria to decide on alternatives

By course end, students will be able to:

- Construct a basic trade study
- Apply basic tradeoff skills
- Recognize cognitive decision making errors

The course is aimed at:

- Engineers of all Disciplines
- Managers
- Leaders and decision makers

- Know how to avoid common biases
- Have an expanded awareness on avoiding mental mistakes in decision making

THE PRESENTER



Eric Smith, Ph.D., is currently an Associate Professor at the University of Texas at El Paso (UTEP), a Research Associate of the Research Institute for Manufacturing and Engineering Systems (RIMES), a faculty member of the Industrial, Manufacturing & System Engineering (IMS) Department, and Graduate Program Director for the Systems Engineering Program. He earned a B.S. in Physics in 1994, an M.S. in Systems Engineering in 2003, and his Ph.D. in Systems and Industrial Engineering in 2006 from the University of Arizona in Tucson, AZ. His dissertation research lay at the interface of systems engineering, cognitive science, and multi-criteria decision making. He taught for two years in The Boeing Company's Systems Engineering Graduate Program at the Missouri University of Science & Technology. He has given invited talks at the Boeing Company, on the topic of risk management, and for a Multiple University Research Initiative (MURI), on the topic of ameliorating mental mistakes in uncertain and complex environments. He has worked with Lockheed Martin Corporation's summer internship and project practicum for systems engineering students. His current research interests include complex systems engineering, risk management, and cognitive biases.

MEETING DETAILS

Time: Registration is 8:15am – 9:00am;
Tutorial 9:00am – 2:00pm

Date: Friday, November 7, 2014

Place: Room 101, Workforce Training Center (WTC),
5600 Eagle Rock Ave. NE Albuquerque, NM 87113,
<http://www.cnm.edu/depts/wtc/index.html>.

Directions: From Junction of I-40 and I-25 in Albuquerque take I-25 North to exit 233, Alameda Boulevard. Take a left and cross the freeway. See map to left.

Package: The tutorial cost includes tutorial notes, lunch and snacks.

Payment: Please (a) submit the attached form by email and (b) pay on-line or by check (see www.incose.org/enchantment). You will receive an email receipt, which will act as your confirmation. If you do not receive a confirmation or have trouble paying, contact Mary Compton at mlcompt@sandia.gov

Contact: Other questions? Contact Ann Hodges at alhodge@sandia.gov.



TUTORIAL ENROLLMENT FORM (Remit with Payment)

Tradeoff Studies, Techniques and Biases

(Friday, 7 November 2014)

Albuquerque, NM

(a) please fill out and email this registration form to INCOSEEnchantment@comcast.net

Name: _____

Company: _____

Day Phone: _____ Cell Phone (optional): _____

Email: _____ INCOSE Member No. _____

Designate the amount paid:

	INCOSE Member	Non- Member	Student
TUTORIAL Tradeoff Studies, Techniques and Biases	\$150	\$200	\$0

(b) Payment Methods:

- Payment by CREDIT CARD: can *only* be accepted via the link at the INCOSE Enchantment web site: www.incose.org/enchantment. Credit card payment will *not* be available at the door.
- Payment by CHECK: submit with this registration form. Check payment will *not* be accepted at the door. Please make out to “INCOSE Enchantment Chapter” and mail it to:

Fall 2014 Tutorial
INCOSE Enchantment Chapter
P.O. Box 50516
Albuquerque, NM 87181

TO SUMMARIZE: Please (a) submit this form by email and (b) pay on-line or by check. You will receive an email receipt which will act as your confirmation. If you do not receive a confirmation or have trouble paying, please contact Mary Compton at mlcompt@sandia.gov

For any other questions, email Ann Hodges at alhodge@sandia.gov .

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INCOSE Enchantment web site: www.incose.org/enchantment