The Enchanted View
— Thinking About Systems —

Published quarterly and sent to all INCOSE Enchantment Chapter members. 2011 Q1
www.incose.org/enchantment

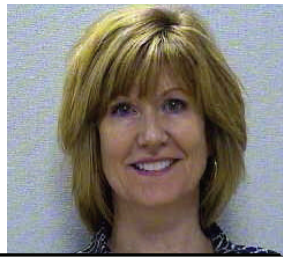
Meet The 2011 Officers

Heidi Hahn, President—Heidi is the Director of the Engineering Capability Development Office at Los Alamos National Laboratory, where she develops and implements strategies for establishing enterprise systems engineering processes and practices. Previously she was Deputy Project Director for Change Management for the Enterprise Project, with responsibility for stakeholder development, communications, reengineering and organizational transition, and end user training. Heidi served for eight years as group leader for the Human Factors Group, conducting and overseeing R&D activities in a variety or areas. Prior to joining Los Alamos in 1990, she served as a senior scientist at the Idaho National Engineering Laboratory. She has a B.A. in psychology from George Washington University (1980), and M.S. in applied behavioral science (1983) and a Ph.D. in industrial engineering and operations research (1986) from Virginia Tech. She earned an M.S. in project management from Colorado Tech in 2006. She holds CSEP-Acq and PMP certifications, and is a member of INCOSE, PMI, Human Factors and Ergonomics Society, and IEEE.

Vision for the Chapter: I wish to see the chapter become a forum for fostering formal and informal collaborations between member organizations, to enhance the research component of our systems engineering activities so necessary for advancing the body of knowledge, while raising the profile of systems engineering as a discipline. While the Chapter can and should provide technology to facilitate collaboration, the key factor for collaborations is the motivation of the membership. I see myself as an ambassador for this initiative, motivating others to seek collaborations. I am committed to lead by example in this area and will work to forge collaborative relationships with other member organizations in the upcoming year. Outreach to universities is an area in which the membership expressed strong interest in the recent survey, and which could provide a source of the kinds of collaborations envisioned above. The Chapter should support outreach, financially and through staffing outreach visits, but must do so in a way that is mindful to avoid creating conflicts of interest for individual members or member organizations. Finally, service to our members must remain a high priority. The survey tells us that members place high value on the educational programs that the Chapter sponsors during monthly meetings, tutorials, and workshops. We must continue to provide excellent technical programs, using technology to make them seamlessly available to members who cannot travel to Albuquerque to attend in person. The Chapter has made a lot of progress with LiveMeeting over the past year, but must continue to perfect both the processes and the technology to make all technical programs available remotely and to make as many as possible accessible both real-time and asynchronously. ∞

Woody Weed, Vice President & President Elect—Woody is a systems engineer and project manager in Sandia's Pulsed Power Sciences Center. His current portfolio includes projects in the pulsed power fusion program and novel x-ray diagnostic systems, which reflect his keen interest in requirements engineering and risk management. From 2003–2008 Woody was deputy project manager responsible for engineering design and commissioning of the Z Refurbishment Project, modernizing the world's most powerful pulsed power accelerator. He has served in the American Vacuum Society as a division chair and short course committee chair, and is a certified Project Management Professional (PMP). ∞

Mary Compton, Secretary—Mary has worked at Sandia National Laboratories (SNL) since 1990. She has a BS in Biology, a Masters in Library Science, a Masters in Education in Science Education, and an MS in Software Engineering with a specialization in Software Systems Engineering. Mary worked as a librarian for 20 years, half spent working in the Technical Library at SNL. In 2001 she transferred to the Science and Engineering Information Systems group where she worked as a systems analyst; she wrote requirements for applications that support nuclear weapons work for the NNSA (the Master Nuclear Schedule and the Weapons Information System) and SNL (the Record of Assembly and the Need-to-Know Engine.) In October 2010 Mary became a systems engineer in one of the firing set groups at SNL. Mary has served as the Enchantment Chapter Secretary since 2008. ∞



Tana Lucy, Treasurer—Tana currently serves as the Chief of Staff to the Sandia National Laboratories' Director. In her 24 years with Sandia, Tana has held a variety of management positions in the areas of Information Technology, Manufacturing, Systems Integration and Program/Project Management. In 2010, Tana served on the INCOSE Enchantment Chapter Board as the Sandia representative. In this capacity, Tana co-initiated the efforts to establish a stronger partnership between the local INCOSE and PMI chapters. Tana holds a masters of engineering in Systems Engineering from Steven's Institute of Technology and is a certified Project Management Professional (PMP). ∞

INCOSE International Workshop in Phoenix—IW10—29Jan-01Feb

You won't find this conference-badge-insert of working group sessions on the INCOSE web site, so you might want to print and cut a copy to take with you if you are going. For updates to this 23 December schedule go to: www.incose.org/workshop/docs/IW2011_SchedulebyDay.pdf

If you haven't decided yet, here's some things to think about ...

Unlike INCOSE's annual International Symposium and other conferences, there are no paper, panel or tutorial presentations. Instead, attendees spend 4 days working alongside fellow systems engineers. Systems Engineers at all levels and from all backgrounds are encouraged to engage in working sessions, and contribute their knowledge and experience to take the discipline forward.

Working group meetings at IW represent about half of the meetings that occur. The other half called "core" are associated with INCOSE committee, administration, forward planning, and networking activities. These include plenary sessions, technical operations planning, International Symposium planning with paper/panel/tutorial selections, regional meetings offering collaborating with neighboring chapters, and of course social networking events. Some of these core sessions are closed for designated committee members only, but most are open.

If you haven't attended any working group (WG) meetings at one of the INCOSE International Workshops, you should feel comfortable in doing so. They are generally informal gatherings of people interested in talking and hearing about the WG area of interest. Working group activity varies, with mixtures of round-the-room discussion, presentations, break-out workshop sessions, activity and project planning, project work, project updates, symposia on scheduled topics, and more.

Open sessions are the norm, and everyone is welcome to come and participate or simply lurk, whether officially a member of the working group or not. An excellent opportunity to learn what the WG does and decide if you want to join the group. Some WG's, like Biomedical, have closed sessions as well, so if you are a member of a WG you might find additional sessions in the full listing.

For links to Working Group activity pages visit: http://www.incose.org/practice/techops/

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Open WG Meetings	**Sat 29Jan**	**Sun 30Jan**	**Mon 31Jan**	**Tue 1Feb**
Affordability			08:00-17:00	08:00-17:00
Anti-Terrorism International			09:00-17:00	09:00-17:00
Architecture			09:00-12:00	
Autonomous Systems T&E				13:00-16:00
Biomedical	09:00-17:00			09:00-17:00
Complex Systems		08:00-17:00	13:00-17:00	08:00-17:00
Human Systems Integration		11:00-17:00	08:00-12:00	08:00-16:00
Lean Systems Engineering		13:00-17:00	13:00-17:00	
Measurement	10:30-17:00			
Motor Sports				08:00-12:00
Process Improvement		09:00-10:00	09:00-10:00	09:00-10:00
Reliability Engineering		10:00-12:00	10:00-12:00	
SE in the Commercial World			13:00-15:00	09:00-10:00
SE Effectiveness			15:00-17:00	10:00-12:00
SE for VSMEs	14:00-17:00	08:00-17:00	08:00-17:00	08:00-12:00
Systems Science	08:00-18:00	08:00-18:00	08:00-18:00	08:00-18:00
System Security Engineering			08:00-17:00	08:00-12:00
Transportation		15:00-17:00	09:00-11:00	
Open Workshops				
Model Based SE		08:00-17:00	08:00-17:00	
Systems Engineering Reuse	10:30-17:00			

MBSE Workshop 30Jan-31Jan

The Model-Based Systems Engineering (MBSE) Workshop will be held on Sunday, Jan 30 through Monday, Jan 31, and will include presentations on the MBSE Activity and Challenge Team efforts on Sunday, and roll-up-your-sleeves breakout sessions on Monday. Activities include Methodology and Metrics, MBSE Usability, SoS/Enterprise Modeling, Ontology, Model Management, and Modeling Standards. Breakout sessions will focus on critical MBSE related issues, and developing plans to advance the practice of MBSE.

See details and schedule updates at: www.omgwiki.org/MBSE/doku.php?id=mbse:incose_mbse_workshop.

System Security Engineering WG Essay Review & Workshop 31Jan-01Feb

The SSE Working Group will meet on Monday Jan 31 from 8:00-5:00 and on Tuesday Feb 1 from 8:00-12:00. Monday is planned as a symposium review of approximately ten essays for the July 2011 issue of INSIGHT - themed as: *Systems of Systems and Self Organizing Security*.

Tuesday is planned for other project activities, new project considerations, and a 60 minute presentation of SORN-S, a self-organizing resilient-network sensing and sense-making system for network awareness.

Live Meeting will be active both days, and can be joined during meeting hours at: https://www.livemeeting.com/cc/incose/join?id=J426R5&role=attend&pw=WB%24c%25%7D%3D%3E7.

See agenda details with continuous updates through end of January here: www.parshift.com/s/IW11-SecWgAgenda.pdf ∞

Recent Meetings

Mary Compton, Sandia National Labs

October 2010—Heidi Hahn, Los Alamos National Laboratory, presented Stakeholder Management on an Enterprise-wide Software Engineering Project – What Worked and What Didn't. The Los Alamos National Laboratory's (LANL's) Enterprise Project – the implementation of a commercial off-the-shelf enterprise resource planning (ERP) system to replace the home-grown business computing systems in use since the early 1980's – provided a case example of the importance of early and rigorous intervention with stakeholders at all levels of the organization. The focus of the talk was on the Project's implementation of two key elements of the stakeholder requirements definition process – stakeholder identification and requirements elicitation. Some of the stakeholder management approaches used by the project were described and placed in the systems engineering context. Where applicable, the theoretical underpinnings of the approaches were discussed. Finally, lessons learned were provided, along with some insights into why particular results were obtained. A copy of the presentation can be obtained from the INCOSE Enchantment Chapter website: www.incose.org/enchantment/library.aspx.

November 2010—Ernie Garcia, Sandia National Laboratories, presented an overview of MEMS (Microelectromechanical Systems). Microelectromechanical Systems or MEMS is a broad multidisciplinary field that utilizes expertise from all areas of science and engineering and has great potential to solve many problems in a number of areas. It is intriguing to consider the opportunities, but one area that is ripe for exploitation is in the area of biomedical engineering. Ernie reviewed some fundamentals of MEMS such as how are these microstructures fabricated and how can they interface with the macro world. Most of the examples will come from my own work in the field, which by the way, is not related to bioMEMS but more towards sensing and switching. However with a background in MEMS, and he talked some about nano technology.

December 2010—This year's Annual Holiday Networking Meeting was "A Night at the Atomic Museum" held at the National Museum of Nuclear Science & History on Friday, December 10th. Dinner was followed by a talk about the museum's history and future plans. The museum was available for viewing before and after dinner. Docents were on hand to guide tours and answer questions. This was an excellent opportunity to visit and tour this wonderful facility.

Subsequent to the event, Charles Lowery of the Museum sent this message: "On behalf of the board of trustees, staff, volunteers, and constituents of the National Museum of Nuclear Science & History, please allow me to take this opportunity to thank you and members of INCOSE for your participation with and support of the Museum. We deeply appreciate your commitment to the Museum's mission. … We look forward to the opportunity of developing a sustained partnership between you, INCOSE, and the National Museum of Nuclear Science & History for many years to come.

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Next Meetings

Mary Compton, Sandia National Labs

January 12: Systems with a Will to Live,
Rick Dove, Paradigm Shift International.

Abstract: This talk puts a focus on systems that have an awareness of their environment, and that are sensitive to anomalous changes that might signal a need for a response or an alert. Sensitivity to anomalous change is most useful when every possible change, within a specific domain of interest, accurately triggers attention – where perfect accuracy means no false positives (crying wolf) and no false negatives (undetected anomalies). The talk will first explore inspirational patterns from natural systems that effectively process noisy sensory input from uncertain and changing environments. Then the architecture of the biological immune system will be examined, and subsequently grounded with an artificial immune system example under dvelopment for a resilient cyber-network sense and sense-making application. Of special note is new sense-making technology that enables high fidelity immune system-like performance, effectively covering a vast anomaly space with 10 to the 15 possibilities in the example shown. Finally these concepts will be abstracted as generic patterns, with discussion of applications in non-cyber domains.

February 9: INCOSE International Workshop (IW) 2011 Report by IW Attendees,
Bill Bearden, Mark De Spain, Rick Dove, Heidi Hahn, Francis Peter, and Tom Tenorio.

Abstract: Reports from the Working Group workshops, special papers and panels, and other significant happenings—from chapter members that participated,

March 9: Knowledge Based Engineering in Aerospace.
Paul J. McGoey, Associate Technical Fellow, Knowledge Based Engineering, Boeing.

Abstract: Knowledge Based Engineering (KBE) is the capture, formalization, automation, and re-use of complex design processes and associated rules that are CAD-system independent and re-usable over decades of aerospace product lifecycles. KBE tools and techniques have been used for over 20 years at aerospace, automotive, and A&E industries. The presentation will review the concepts, history, value, tools, techniques, and future potential of KBE in supporting MBSE and leveraging open standards.

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UTEP Student Chapter Has Fast Track for ASEP Exams

Octavio Castellanos, U. of Texas, El Paso

The graduate students in the M.S. in Systems Engineering program at the University of Texas at El Paso formed a study group in preparation for the Associate Systems Engineering Professional (ASEP) examination. There is no difference between the ASEP exam and the one taken for Certified System Engineering Professional (CSEP). ASEP designation requires the same demonstration of handbook knowledge, but waives the professional experience, academic completion, and work references needed for CSEP.

Outgoing President Jose Falliner was the primary motivator and organizer of this study group. Student chapter officers, including Octavio Castellanos - President Elect, Nayeth Herrera - Vice-President, Ana Melendez – Secretary, and Andrew McRea – Treasurer, merged efforts to develop and organize a weekly session for presentations and reviews.

The outline of what we like to call "The ASEP Boot Camp" consisted of an informal draw of study chapters from the INCOSE Handbook. Students agreed by consensus that each student would read and breakdown their drawn chapter in order to be able to present the chapter to the rest of the group

Chapter 1	Jose Hernandez
Chapter 2	Salvador Cordero
Chapter 3	Nayeth Herrera
Chapter 4	Victor Caraveo
Chapter 5	Charlie Calderon
Chapter 6	Carlos Diaz
Chapter 7	Jose Falliner
Chapter 8	OctavioCastellano
Chapter 9	Aaron Prokopchuck

The presentations were assembled by the appropriate members under the direct supervision of Dr. Eric Smith, who revises content, provides input to the different areas of concentration, and has proven to be a valuable advisor for our study efforts.

Presentations have averaged 15 minutes in duration. Students committed to reading each chapter before the corresponding presentation and to contribute with follow-up questions in order to enhance the learning experience. At the end of the presentation, the presenter provides a short 3 to 5 question quiz in the ASEP Test format to assess the learning taking place and introduce the wording and structure of the test.

Meetings for this purpose were held every Thursday at 4:30 pm, which is the time that best fits the majority of the schedules. Meeting time falls in the middle of the day, so extra efforts are being made to attend. To cope with such troubles we agreed to collect $5 every meeting to have food and drinks available at the next meeting, making things easier for most of the attendees.

We consider the presentations, the quizzes, and Dr. Smith's experience a valuable approach toward our ASEP Certification goals. The decision as to when to take the official ASEP Exam is left to each student as fits their situation.

The chapter takes pride in being a welcoming student organization in which professors are viewed as family in addition to their roles of mentors and leaders. Several approaches have been taken to recruit more students as members, one of which is the study sessions for the ASEP Certification.

Further Info: Octavio Castellanos, President, Enchantment-UTEP INCOSE Chapter, (915) 313-1552, ocastellanos@miners.utep.edu ∞

Resources

VideoLectures.NET is a free and open access educational video lectures repository. The lectures are given by distinguished scholars and scientists. Over 10,000 lectures are available.

From TED, a remarkable application of systems-thinking-driven ConOps at its best. Engineer RA Mashelkar shares three stories of **Breakthrough Designs for Ultra-Low-Cost Products** that use bottom-up rethinking, and some clever engineering, to bring expensive products into the realm of the possible for everyone. Independent of the product examples, the approach is broadly applicable.

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New Chapter members

Francis Peter, Management Sciences

Enchantment Chapter now has 100 active members. We would like to welcome the following new INCOSE members to Enchantment Chapter:

Erick R. Fabrizio	L-3 Communications, Inc.
James B. Gose	Sandia National Laboratory
Brent A. Melville	Sigma Science, Inc.
Mark Rosenthal	Sandia National Laboratories
Michael J. Skroch	Sandia National Laboratories
Cassandra M. Wilson	Sigma Science, Inc.

The Enchantment sponsored Student Chapter of the University of Texas at El Paso is doing well in its second year of operation, with 16 active members. We welcome the following new member to the UTEP Student Chapter:

Raul H. Lezama

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Haiku Slam

Rick Dove, Paradigm Shift International

The Haiku challenge is on! Started last issue with a 3 line, 17 syllable (5-7-5) synopsis of the IS10 security panel results...

Standards in winter
Security is screaming
Self-organized spring

Jack Ring parries with...

Problem hides in dark
S E brings light makes thought whole
User's springtime joy

Rick counters with...

Systems thinking thought
Dancing with reality
Hears requirement's song

MILLIONS of DOLLARS COULD BE YOURS

Send your system engineering Haiku to dove@parshift.com. Look up Haiku rules here. Winners will be announced in the Q1 2012 newsletter as among the best of the 2011 submissions, and each will receive an NM lottery ticket for a real slim chance at $$$Multi-Millions. ∞

Chapter Survey Results

Heidi Hahn, Los Alamos National Labs

An online survey solicited feedback in October from Chapter members and information mailing list participants. Respondents were asked to rate the importance of the Chapter's long-term goals, and satisfaction with initiatives taken to meet them.

Respondents were offered an incentive – an entry into a drawing for a $25 cash award. The winner was Ana Melendez, UTEP student and Secretary of the Student Chapter. Congratulations, Ana!

Response rate was 9%, down from nearly 16% last year, but fairly typical for surveys of this type. As shown in the table, the Chapter's strategic goals were generally viewed as favorable. Percent favorable combines responses of "somewhat important" and "very important."

Chapter Goal	% Favorable
Promoting collaboration in & support for SE processes ……...	96.6
Providing continuing education opportunities ……...	100
Improving professional status of SE practitioners ……	89.7
Promoting Chapter activities with regional entities ……...	82.8
Increasing membership & member involvement ……...	89.7
Maintaining operational excellence ……...	86.2

However, the results also showed that the initiatives the Chapter has undertaken to meet our strategic goals need work. This was particularly true with initiatives related to the goals of improving professional status of Systems Engineering practitioners, promoting Chapter activities, and increasing membership and member involvement. The Chapter's Board of Directors (BOD) will look at improvements in these areas during the annual strategic planning meeting in February.

On the positive side, 71.9% of respondents expressed interest in personal Chapter involvement. Meeting attendance was the most desired form of involvement (87%), followed by obtaining SE certification (47.8%), speaking at a meeting (39.1%), and joining the BOD (34.8%). Speaker volunteers have been contacted and are being scheduled for 2011.

The BOD has a few new faces, including President-Elect John "Woody" Weed and At-Large members Sharissa Young and Ann Hodges. Thanks to all who expressed interest in active Chapter involvement. Your 2011 Board will be looking for opportunities to engage you! ∞

Connect to Your Community of Practice

Chapter meetings with a focus on systems engineering are held monthly, usually the second Wednesday, except in December. The December meeting is an annual social event, with mingling, dinner, and a speaker chosen for enjoyment by systems engineers and guests alike.

Monthly meetings feature speakers from out-of-town that are visiting the area for other reasons, and local (more or less) subject matter experts on topics of relevance.

On occasion special facility tours are arranged, sometimes as the monthly meeting, and other times on a separate schedule.

Chapter meetings begin at 4:45. After chapter news, announcements and introductions, the presentation and discussion generally lasts until 6:00, all carried live on Live Meeting for those who can't attend. Recordings are not made.

Tutorials with in-depth coverage on topics of interest are arranged approximately twice a year. Delivered by experts in the field, tutorials range from 1/2 day to day+ durations, and generally involve a tuition.

Mix with people who have the same professional interests as you do, but with a diversity of perspective beyond daily workmates. It comes in handy when you need help or answers to questions outside your accumulated experience, need a connection at another organization, or simply want some mind stretching thought.

Meeting and event notices routinely go to all INCOSE members within the Chapter's geographic territory; but Live Meeting connections, special notices, and collaborative opportunities are generally limited to registered Chapter members. Obtain chapter membership on the INCOSE web site by changing your profile or so selecting as you renew membership.

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Published quarterly by

INCOSE Enchantment Chapter,
New Mexico.

Published material
does not necessarily reflect the views and
opinions of the Board of Directors,
or the Editor of the publication.

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