



# NEWSLETTER



2002, 2004-09



2003



2008 President's Award for Most Outstanding Chapter



## UPCOMING EVENTS

### August Speaker Meeting

#### Piloting Model-Based Engineering Techniques for Spacecraft Concepts in Early Formulation

Presenters: Bjorn Cole, Chris Delp, and Kenny Donahue, JPL

When: August 10, 2010

Where: The Aerospace Corporation

2350 East El Segundo Blvd., El Segundo

Cost: Members—Free, Non-Members—\$10

See page 2 for details..

### INCOSE-LA Tutorial

#### Back to Basics: Requirements Development

Presenter: Jennifer Smith, Raytheon

When: August 27, 2010

Where: The Aerospace Corporation

200 North Aviation Boulevard, El Segundo

See page 4 for details, plus watch your e-mail for Reflector updates.

## SAVE THE DATE

### Quarterly Professional Networking Event

When: September 2010

Date and location TBA

### INCOSE-LA Mini-Conference

When: October 16, 2010

Where: Loyola Marymount University

Call for presentations—new deadline August 13. See page 5 for details.

Want to volunteer? Contact Dick Emerson at

remerson9@gmail.com

### CSER 2011: Conference on Systems Engineering Research

When: April 14-16, 2011

Where: Crowne Plaza Hotel, Redondo Beach, CA

Call for papers. See insert on page 3.

Volunteers wanted! See page 7 for details.

#### For up-to-the-minute event details:

- ◆ Check future editions of the Newsletter
- ◆ Watch your email for the Reflector
- ◆ Visit the INCOSE-LA website at [www.incose-la.org](http://www.incose-la.org)

## A New INCOSE Fellow Dr. Ed Conrow

Dr. Edmund H. Conrow was selected as an INCOSE Fellow for “research and practice associated with risk management, and cost, performance, and schedule trade methods.” The announcement was made at the INCOSE International Symposium, held in Chicago last month. He has over 30 years of experience in technical and management positions evaluating cost, performance, schedule, and risk on a wide variety of programs, and is the author of a highly regarded textbook on risk management.



He has been a risk manager or mentor to risk managers on more than 25 programs and proposals, and has helped develop risk management processes and policies that are in widespread use by both industry and government. Dr. Conrow has a Ph.D. in General Engineering, an M.S. and a B.S. in Nuclear Engineering, plus a Ph.D. and an M.Phil. in Policy Analysis.

Dr. Conrow joins a distinguished group of INCOSE fellows in the Los Angeles area: Elliot Axelband, Barry Boehm, John Clymer, George Friedman, Scott Jackson, Azad Madni, Stan Settles, John Velman, and Marilee Wheaton. The late INCOSE Fellow Dr. Eberhardt Rehtin was also from the Los Angeles area. (Of the 11 Fellows from the Los Angeles area, eight have been associated with the University of Southern California.)

**Congratulations, Ed!**

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## AUGUST SPEAKER MEETING

# Piloting Model-Based Engineering Techniques for Spacecraft Concepts in Early Formulation

**Presenters:** Bjorn Cole, Chris Delp, and Kenny Donohue,  
Jet Propulsion Laboratory

### PARTICULARS

**When:** Tuesday, August 10, 2010, 5:30—8:30 p.m.

**Where:** The Aerospace Corporation  
2350 East El Segundo Blvd., El Segundo  
*Remote sites will be available.*

**Cost:** Members-*FREE*; Non-members-*\$10.00*

### Meeting Agenda:

5:30 - 6:20 p.m. Registration, networking, refreshments

6:20 - 6:30 p.m. Welcome and announcements

6:30 - 7:45 p.m. Presentation followed by questions and answers

*Substantial refreshments will be provided at the host site.  
(Contact Remote Site POCs for more information regarding refreshments).*

**ABSTRACT:** The Jet Propulsion Laboratory (JPL) Integrated Model-Centric Engineering (IMCE) project is tasked with bringing Model-based Engineering methods, tools and practices into use by systems engineers.

Taking a Europa-focused flagship concept proposal as an example of a system that is early in its engineering lifecycle, IMCE piloted architectural elements for an integrated modeling environment. These elements were used together both as a proof-of-concept and to guide development of the methods, tools and practices for flight projects as JPL transitions to model-centric engineering.

The speakers will present both products of this effort and a variety of insights to guide the future of model-centric engineering techniques. Also, recommendations are made regarding the strengths and weaknesses of existing information models and the Systems Modeling Language (SysML).

**BIOGRAPHIES:** **Bjorn Cole** is a new career hire in the Mission Systems Concepts section at JPL. His research interests include systems design, optimization, simulation, and design space exploration and visualization. He earned his B.S. in aeronautics and astronautics from the University of Washington and M.S. and Ph.D. degrees from Georgia Tech in Aerospace Engineering.

**Christopher Delp** is Architectural Engineer for Multi-Mission Operations and a member of the Flight Software Systems Engineering and Architectures Group at JPL. His research interests include software and systems architecture, model-based systems engineering applications, and real-time embedded software engineering. He earned his M.S. and B.S. degrees from the University of Arizona in Systems Engineering.

**Kenny Donahue** is a summer student in the Mission Systems Concepts section at the JPL. He is finishing up his Masters at

MIT, focusing his research in passive recognition of objects in lidar point clouds for use on an autonomous forklift. His interests are varied but include automatic speech recognition, natural language processing, and system design. He earned his B.S. in Electrical Engineering/Computer Science from MIT.



**R.S.V.P.:** R.S.V.P. by registering online at [www.incose-la.org](http://www.incose-la.org) or by sending an email to [registration@incose-la.org](mailto:registration@incose-la.org) (please include "INCOSE-LA August Meeting" in subject line). Please be certain to indicate the site at which you will be attending. R.S.V.P. to attend. NO EXCEPTIONS for Aerospace and Boeing sites. If you are uncertain whether or not you'll be able to attend, DO make a reservation. Additional requirements for the different locations are below.

**Host Site—The Aerospace Corporation, El Segundo:** Please complete R.S.V.P. (U.S. citizens and resident aliens by August 6, foreign nationals by August 3). Please bring your picture identification (driver's license, passport, or green card) to the meeting. **Site contact:** Susan Ruth, phone 310-336-6765, e-mail [susan.c.ruth@aero.org](mailto:susan.c.ruth@aero.org)

### Remote/Webcast Sites

**Boeing, Huntington Beach:** R.S.V.P. by August 6. Attendance at this site is limited to U. S. citizens and resident aliens; we regret that foreign nationals will not be able to attend at this site. Please bring your picture identification (driver's license, passport, or green card) to the meeting. Site contact: Beth O'Donnell, phone 714-837-6924 or e-mail [elizabeth.l.o'donnell@boeing.com](mailto:elizabeth.l.o'donnell@boeing.com).

**Antelope Valley/Palmdale:** Open to all. Contact Mike Wallace, phone: 661-540-0290, e-mail: [m.wallace@ngc.com](mailto:m.wallace@ngc.com).

**DIRECTIONS TO AEROSPACE:** From the 405, head west on El Segundo Blvd., turn left (south) on Douglas, and then turn left into the first gate on the left. After checking in with the guard, proceed to the stop sign and turn left. Park near the second building on your right, A8. Enter the lobby and badge in. We meet in Dining Rooms A&B, our normal meeting rooms. To get there from the lobby, proceed through the building into an open area, continue across the open area into the cafeteria (only door on opposite side of open area), proceed through the cafeteria into the next open area. Turn right and continue down the building (south) to the last door on the right of that building that you can see from the open area.

### Volunteer Opportunities: CSER Wants YOU!

Thinking about getting more involved with INCOSE-LA? Here's your chance!

We are currently staffing volunteer positions to help with the upcoming Conference for Systems Engineering Research (CSER) to be held April 14-16, 2011, in Redondo Beach. Planning is now underway.

The following positions are currently open: Registrar, Publicity Chair, Finance Chair, Inter-organizational Liaison, Publications, Exhibits, Audio-Visual, Website-execution, and Website-content.

If any of these jobs sound interesting and if you want to become a more active member, please contact our Conference Chair, Ken Johnson, at [Kenneth\\_B\\_Johnson@raytheon.com](mailto:Kenneth_B_Johnson@raytheon.com).

## Topics

We invite original research papers addressing the conception, design and architecting, development, modeling and simulating, production, operation and support of these systems; definition of metrics of performance, and improvement methods; assessment and mitigation of risks; definition of critical success factors, and best practices. The refereed research papers at the conference will be complemented with invited talks. Papers are invited in the following broad areas:

- Model-based Systems Engineering
- Value-based, Lean, Agile Systems Engineering
- System Security Engineering
- Integration of Physics-based and Information-based Models
- Social Networks and Graph Theory
- Early Stage Design Concepts and Economic Value of lities
- Uncertainty and Complexity Management
- Systems Architecting and Architecture Tradeoff Analysis
- Cognitive Engineering and Human-Systems Integration

## Papers

Papers must include:

1. A Title
2. Full Author Name and Affiliations
3. Complete Address for the Corresponding Author

Doctoral candidates pursuing systems engineering related research are specially encouraged to submit papers. One technical track at the CSEER'11 will be devoted to papers by doctoral candidates. Please submit your paper electronically in Microsoft Word (not to exceed 10-pages) to: [cser2011@usc.edu](mailto:cser2011@usc.edu)

### Conference Honorary Chair:

George Friedman, USC

### Conference General Co-Chairs:

Azad Madni (USC) and Elliot Axelband (RAND)

### Technical Program Co-Chairs:

Roger Ghanem (USC) and Marilee Wheaton (Aerospace Corporation)

The University of Southern California in collaboration with Stevens Institute of Technology presents the 9<sup>th</sup> annual Conference on Systems Engineering Research.

The primary conference objective is to provide practitioners and researchers in academia, industry, and government a common platform to present, discuss and influence Systems Engineering research with the intent to enhance Systems Engineering practice and education. Papers are solicited pertaining to research in all these areas.

Organized by the University of Southern California (USC) in collaboration with Stevens Institute of Technology, managed by the Los Angeles Chapter of the International Council on Systems Engineering (INCOSE) and additionally, co-sponsored by others.

## Milestones

Full Paper submission: Oct. 15, 2010

Acceptance notification: Jan. 4, 2011

Camera ready copy due: Feb. 4, 2011



# ***August Tutorial Back to Basics: Requirements Development***

**Presenter:** Jennifer Smith, Raytheon

## **PARTICULARS**

**When:** Friday, August 27, 2010, 8:00 a.m.—5:00 p.m.

**Where:** The Aerospace Corporation  
200 North Aviation Blvd. Building D8, El Segundo

**Cost:** Members—\$90, Non-members—\$120  
(Continental breakfast and box lunch will be provided.)

**ABSTRACT:** One of the most costly aspects of any program is when the requirements “weren’t done right.” This course’s intent is to identify where the problems start to creep in and how to prevent them from occurring.

This is a one day session, where the student is introduced to requirements development and management. The objectives of this course are:

- ◆ Explain the business case for requirements development
- ◆ Identify the sources of system requirements
- ◆ Recognize and articulate the characteristics of good requirements
- ◆ Categorize requirements for the next stage of Systems Engineering
- ◆ Explain the importance of managing the resulting requirements
- ◆ Lessons Learned

This course is not intended to be “death by PowerPoint” but rather an interactive course with many hands-on group exercises. Part of this experience is to drive home the points of good systems engineering processes that go hand in hand with requirements development and management. Students will achieve a strong understanding of how to avoid the pitfalls of poor requirements development and the subsequent impact to the program throughout its life-cycle.

The intended audience is for:

- ◆ Entry level requirements engineers and systems engineers
- ◆ Individuals with minimal requirements development experience
- ◆ Individuals looking for a refresher
- ◆ Engineers from other disciplines and anyone else who wants to understand “where it all begins”

**BIOGRAPHY:** **Jennifer Smith** is a Systems Engineering Manager at Raytheon. She has been with the company for over 10 years working on various programs both as an individual contributor and as a leader. These programs have taken her from one end of the country to the other and abroad, providing insight on some of the good and not so good techniques in systems engineering.



She has worked in many facets of systems engineering,

including, in particular, requirements development and requirements management. She has worked on and led the application of the systems engineering process in all phases of a program from proposal through sustainment. Jennifer has been recognized as an expert and is a certified instructor of Requirements Development and Management for Raytheon.

**R.S.V.P.:** R.S.V.P. to attend by registering online at [www.incose-la.org](http://www.incose-la.org) or by sending an email to [registration@incose-la.org](mailto:registration@incose-la.org) (please include “INCOSE-LA August Tutorial” in subject line). **NO EXCEPTIONS.**

U.S. citizens and resident aliens should R.S.V.P. by August 23, foreign nationals by August 20. Please bring your picture identification (driver’s license, passport, or green card) to the class. **Site contact:** Susan Ruth, phone 310-336-6765, email [susan.c.ruth@aero.org](mailto:susan.c.ruth@aero.org).

**DIRECTIONS TO AEROSPACE:** From the 405, head west on El Segundo Boulevard, and turn right on Aviation Boulevard (north). Building D8 is less than 1/4 mile on the right.

**QUESTIONS?** Contact Shirley Tseng, Education Director, at [shirleytseng@earthlink.net](mailto:shirleytseng@earthlink.net)

## **Get the latest on INCOSE-LA happenings in the Reflector e-mails**

If you wish to be placed on our e-mail distribution, please contact Susan Ruth – [susan.c.ruth@aero.org](mailto:susan.c.ruth@aero.org)



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career is on the right track**

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INCOSE SE Handbook version 3.2**

Michael E. Krueger, CSEP  
[michael.krueger@ase-consult.com](mailto:michael.krueger@ase-consult.com)  
717-674-0406

# ***INCOSE-LA 2010 Mini-Conference Coming October 16 to LMU Call for Papers Deadline Extended Until August 13***

*By Richard Cline and Beth O'Donnell*

On October 16, Loyola Marymount University will host the INCOSE Los Angeles Chapter 2010 Mini-Conference. The theme this year is ***Increasing the Value of Systems Engineering's Portfolio to Our Stakeholders***. This Mini-Conference will focus on a "self examination" of systems engineering by addressing the questions: 1) How good is our portfolio? 2) How can we increase the effectiveness of our portfolio? and 3) How can we increase our customers' demand for our portfolio? The Mini-Conference theme will capture the essence of the INCOSE mission and goals, while also addressing an array of relevant systems engineering domains and issues.

The Keynote Speaker for the Mini-Conference will be Jack Murphy, Ph.D., Vice President of Systems Engineering and Mission Assurance, Boeing Defense Systems. This year's single track conference will offer a range of speaker sessions, a panel discussion with panel members representing various industries, and experiences, offering interactive audience participation, special guest speakers, and more.

The deadline for abstract submittal has been extended to Friday, August 13, 2010. There is still time to submit abstracts on your prospective presentations. Please send a summary, one-page or less, of your presentation to the Technical Chair, Richard G. Cline (e-mail: [richard.g.cline@boeing.com](mailto:richard.g.cline@boeing.com)).

## **The Board of Directors wishes to welcome the following new members in the Los Angeles Chapter of INCOSE:**

Note: The information listed below is from the member directory and is based upon your initial membership application. If the information is not correct or complete, then please access the member directory (at [www.incose.org](http://www.incose.org)) to update your information.

Name	Title	Company
Ricardo Arteaga	Senior Systems Engineer	NASA
Steve Badelt	President	Badelt Engineering
Mark Banyai		
Bjorn Cole	Systems Engineer	Jet Propulsion Laboratory
Navid Dehghani	MSL GDS Integrated Delivery Mgr	Jet Propulsion Laboratory
Tracy Dworsky	Dir Technical Requirements	WellPoint
Joshua Freeman	General Manager - Corporate	Certification Training International
Wes Gavins	Senior Associate	Booz Allen Hamilton
Noureddine Harche	Mng Dir, Enterprise Architect	Trusted Technologies Inc.
Daniel Hurley		
David John	Sr. Director, R&D	Medtronic
John Kenney	Systems Engineer	Artistic Entry, LLC
Kevin Knudsen	Senior Manager	The Boeing Company
Glenn Masukawa	Director, Engineering Mgmt	Northrop Grumman Corp
David McCormick	Principal Systems Engineer	The Boeing Company
Gary Palosaari	Process Engineer	The Boeing Company
Vladimir Pejovski	Project Engineer	Southern California Edison
John Saltzman	Systems Engineer	NASA
Reinhard Sandrock	Engineering Manager	Lockheed Martin
John Sicklick	Information Assurance Engineer	Northrop Grumman Info Systems
Matthew Zubia	Flight Test Engineer	U.S. Navy

## **INCOSE-LA Chapter NEWSLETTER**

Vol. 8: Issue No. 6 June/July 2010



INCOSE-LA members gather at the 20th Annual INCOSE International Symposium held in Chicago, IL, July 12-15.

## **RECAP: INCOSE IS2010, Chicago, IL**

*By Jorg Largent*

The INCOSE International Symposium drew over 700 people from around the world – from Singapore to Sweden and from Taiwan to Turkey. The participants represented a wide range of applications, from bio-medical to surface transportation, plus the more commonly known aerospace enterprises. Independent of the diversities that brought them to the symposium, the attendees all shared an interest in learning more and in advancing the profession. All of the participants interviewed were positive about the symposium and felt that they had learned something.

While the symposium, as expected, included panels, papers and working groups, it also included ad hoc groups by employer (Boeing and Rockwell Collins had a large presence) and chapter (our chapter was enthusiastically represented).

There were several interesting comments and observations shared by the participants, and several challenges to advancing the profession were cited. A few are captured below.

One panelist noted the purchase of a tunnel-boring tool before a study was made to determine the properties of the material through which the boring machine would be tunneling. The issue was that the study was needed to determine the requirements for the tool. While this is a unique situation, it was noted that many projects have purchased software tools without first determining the capabilities needed – the requirements that the tool should satisfy to facilitate the project.

One example noted, as a part of a discussion of the challenge of dealing with multiple organizations with different values, was a highway project in which an interfacing community's system was a promise to "improve" their system without defining "improve."

**Iceberg requirements?**

There were several variations of the "language the problem" concept attributed to Fellow Jack Ring in an earlier edition of the *Newsletter*. A variety of phrases were used to describe the challenge:

- ♦ Establishing the terminology to be used on a project early in the project
- ♦ Lack of consistent definitions
- ♦ Projects involving a variety of disciplines and organizations will have problems if the vocabulary is not established at the beginning
- ♦ Systems engineers should get involved early in the life of a project

The terminology taught in colleges does not match the terminology used in the field, which can vary between projects and industries

One of the challenges was exemplified by a manufacturer who decided to split the application of the systems engineering process into two consecutive elements. Another challenge came from a well-established

**[fill in the blank] is a silver bullet!  
– but it isn't**

industry that has used the systems engineering process to advantage, albeit unwittingly. The challenge: the traditional approach based on 200 years of history. This challenge faces most projects in which new technology is being introduced to an established and successful industry.

A presentation on modeling brought out some points:

- ♦ The solution a model will provide is limited to the set of solutions the model can provide
- ♦ Assumptions that should go into a model should be challenged, but often are not
- ♦ Connecting models is important (systems of systems)

One interesting note was the transportability of skills from one industry to another. A representative of the Long Island Railroad remarked that many of their employees formerly worked for Grumman and that their contribution to the railroad enterprise was commendable.

Additional comments:

- ♦ A participant from the Netherlands thought the symposium should be more academic (less about projects and more about systems engineering itself) and a participant from New York thought that the symposium should be less academic.
- ♦ The first version is often the best; committees that take "good enough" and make it better often don't.
- ♦ The symposium was a good source of networking and a very stimulating atmosphere.
- ♦ There is an ongoing effort to share experiences and applications of the process between industries.
- ♦ Use cases need to be thought out more thoroughly – a point illustrated by false alarms and audio alarm fatigue in ICUs and operating theaters in hospitals.
- ♦ Some graduates with degrees in systems engineering were unfamiliar with the process as defined by INCOSE.
- ♦ Systems engineering is contextual.

*(Continued on page 7)*

# ***Lean Enablers for Systems Engineering Makes a Big Appearance at INCOSE IS2010***

*By Bo Oppenheim, Co-Chair Lean SE Working Group*

Lean SE was an important theme of the IS2010 in Chicago. Several exciting Lean events took place throughout the week, as follows:

1. "Tutorial on Lean Enablers for SE" (LEfSE). About 40 people attended the tutorial held on
2. The Lean SE Working Group Meeting was devoted to the implementation of Lean. Several companies presented their successful implementation of LEfSE: O. Terrien of Thales, France (measuring an ROI of five from the LEfSE), D. Secor of Rockwell Collins (R-C), and G. Fanmuy of AFIS (French branch of INCOSE). Thales and R-C have big plans to implement LEfSE throughout their companies worldwide. During the meeting, Lt. Col. D. Jacques of Air Force Institute of Technology (AFIT) described development of a module on LEfSE in the AFIT SE program. R. Zittel of Defense Acquisition University discussed plans to disseminate Lean SE within the DoD community.
3. Panel "Lean SE: Who can afford to ignore it?" drew about 50 attendees. Two speakers, H. Sillitto from Thales UK and A. Zonnenshein from Rafael, Israel reported program savings of 20-40% from the implementation of only a few Lean Enablers for SE.
4. The "ROI and Lean SE" sessions included a paper presented by O. Terrin. In his presentation, Mr. Terrin described plans for all Thales facilities to implement Lean SE. Eric Honour, former INCOSE President, presented a profound paper titled: "Systems Engineering Return on Investment". The paper described results to-date from a large quantitative research on recent SE programs. Among others, two important results were announced, as follows:
  - a. Well funded and well conducted SE process improves budget and schedule but does not improve the technical quality of programs. Some attendees speculated that the reason may be that the SE profession has degenerated into "a bureaucracy of creating artifacts" from its intended role of "engineering complex systems".
  - b. The programs that emphasized frontloading, planning, program preparations and the use of best experts early have performed significantly better than those that did not. (In the Q&A B. Oppenheim pointed out that LEfSE include explicit enablers which address all these good practices and can be expected to improve the technical quality of programs.)
5. INCOSE has inserted a Chapter on Lean SE into the latest version of the INCOSE Systems Engineering Handbook.
6. Samantha Brown, INCOSE President, would like the LEfSE to be inserted into the next release of the INCOSE Handbook, explicitly, in the individual practices listed therein. Also, Samantha Brown would like to include questions on LEfSE into the Certification test.
7. Axel Mauritz of EADS, Europe, in his presentation on

strategic plans, listed Lean SE as the number one SE imperative of EADS, followed by five others.

Relevant to Lean thinkers: on June 28, 2010, Ashton B. Carter, Undersecretary of Defense for Acquisition Technology and Logistics, published *Memorandum for Acquisition Professionals* (<https://dap.dau.mil/Pages/NewsCenter.aspx?aid=98>). The last bullet in it says: "...Obtain 2-3% net annual growth in war fighting capabilities without commensurate budget increase by identifying and eliminating unproductive or low-value-added overhead and transfer savings to wartime capabilities. Do more without more". The *do more without more* is exactly the philosophy of Lean Thinking implemented in our Lean SE goals and strategy. The 2-3% of productivity increase is nothing when Lean is applied; the examples of actual implementations listed above speak of 20-40% improvements.

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## ***IS2010 Recap***

*(Continued from page 6)*

- ◆ Every engineer should be a systems engineer or at least a systems thinker.
- ◆ The INCOSE organization should be less centralized.
- ◆ "One size fits all" in terms of forms and tools tends to limit the effectiveness of the process because it can minimize the need for thinking through the process.
- ◆ There can be a difference between "what is it supposed to do," and "what is the need."
- ◆ The amount of overall cost versus amount of process goes up if there are too few processes and decreases as the number of processes increases, but only to a point. Beyond that point the overall cost begins to increase. The obvious trick is to find the sweet spot in the middle.

There was a lot of give and take and a lot of sharing, plus the identification of some areas in which the profession could improve in helping people better understand the process and then to better apply the process.

Next year: Denver!



*INCOSE-LA Past President Eric Belle and President Roz Lewis enjoy the Blues Brothers-themed IS2010 banquet..*

# INCOSE-LA Chapter NEWSLETTER

Vol. 8: Issue No. 6 June/July 2010

## Return Address:

800 S. Pacific Coast Hwy. #8-205  
Redondo Beach, CA 90277

## Forwarding Address Requested

The International Council on Systems Engineering (INCOSE) is an organization formed for the purpose of advancing the art and science of systems engineering in various areas of the public and private sectors. Our mission is to advance the state of the art and practice of systems engineering in industry, academia, and government by promoting interdisciplinary, scalable approaches to produce technologically appropriate solutions that meet societal needs.

The Los Angeles Chapter meets several times per year for dinner meetings, and additionally sponsors tutorials and other activities of interest to those in the systems engineering field or related fields. L. A. Chapter officers are as follows:

<b>Elected Officers</b>		<b>2010 Board of Directors and Appointed Positions</b>	
<b>President:</b>	Rosalind Lewis	rosalind.lewis@aero.org	or president@incose-la.org
<b>Vice-President:</b>	Beth O'Donnell	elizabeth.l.o'donnell@boeing.com	or vicepresident@incose-la.org
<b>Past President:</b>	Eric Belle	eric_c_belle@raytheon.com	or pastpresident@incose-la.org
<b>Secretary:</b>	Josh Sparber	joshua.sparber@dcma.mil	or secretary@incose-la.org
<b>Treasurer:</b>	Marsha Weiskopf	marsha.weiskopf@aero.org	or treasurer@incose-la.org
<b>Elected At-Large Directors</b>			
<b>Membership:</b>	Paul Cudney	paul.cudney@incose.org	or membership@incose-la.org
<b>Programs:</b>	John Silvas	silvas_john@bah.com	or programs@incose-la.org
<b>Systems Engineering Education:</b>	Shirley Tseng	shirleytseng@earthlink.net	or setraining@incose-la.org
<b>Ways and Means:</b>	Shah Selbe	shah.selbe@boeing.com	or waysandmeans@incose-la.org
<b>Communications:</b>	Edie Ung	ma1teez@yahoo.com	or communications@incose-la.org
<b>Appointed Positions</b>			
<b>Newsletter Co-editors:</b>	Edie Ung, Jorg Largent	ma1teez@yahoo.com	or Palmdalejorg@aol.com
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<b>Reflector Manager:</b>	Susan Ruth	susan.c.ruth@aero.org	
<b>Industrial Relations Manager:</b>	Jose Garcia, Jr.	jose.s.garcia-jr@boeing.com	
<b>Technical Society Liaison:</b>	Edmund Conrow	info@risk-services.com	
<b>Chapter Recognition Manager:</b>	Michael Maar	michael.c.maar@boeing.com	
<b>Lead Site Coordinator:</b>	Anna Warner	anna.warner@boeing.com	
<b>Webcast Event Manager:</b>	Chris Delp	cdelp@jpl.nasa.gov	
<b>Website Technical Manager:</b>	Michael Kim	kim_michael_l@bah.com	
<b>Professional Networking Chair:</b>	Nehal Patel	nehal_p1_patel@raytheon.com	
<b>2010 Mini-Conference Chair:</b>	Richard (Dick) Emerson	remerson9@gmail.com	
<b>2010 Mini-Conference Technical Program Chair:</b>	Rick Cline	richard.g.cline@boeing.com	
<b>Representative to San Fernando Valley Engineers' Council:</b>	Stephen Guine	Stephen.Guine@ngc.com	

Those interested in INCOSE membership please contact Paul Cudney - [paul.cudney@incose.org](mailto:paul.cudney@incose.org). If you wish to be placed on our E-mail distribution, please contact Susan Ruth - [susan.c.ruth@aero.org](mailto:susan.c.ruth@aero.org).