



# NEWSLETTER

Los Angeles Chapter of INCOSE

[www.incose-la.org](http://www.incose-la.org)

Issue No. 7

Aug, 2003

## COMING EVENTS

### **Dinner Meeting**

**Wednesday August 20th**

**Systems Engineering Revitalization  
Col. (Ret) Paul Humel, USAF**

**Time**

5:30 PM Networking  
6:30 PM Presentation

**Location**

The Aerospace Corporation

### **Tutorial**

**Friday September 26th**

**DOD Architecture Framework: Overview and Application  
Guidance  
James Martin**

**Location**

LA Airport Radisson Hotel

### **Dinner Meeting**

**October 14th**

**From Function Driven Systems Engineering to Object  
Oriented Software Engineering**

**Dr. Peter Hoffmann  
I-LOGIX**

**Location**

The Aerospace Corporation

### **Dinner Meeting**

**November 11th**

**TBA**

**Location**

TBA

**2<sup>nd</sup> ANNUAL CONFERENCE ON  
SYSTEMS ENGINEERING RESEARCH  
(Formerly Conference on Systems Integration)  
April 14-16, 2004**

[www.usc.edu/dept/engineering/cser](http://www.usc.edu/dept/engineering/cser)

**Location**  
USC Campus  
Los Angeles, California

**Registration for the LA INCOSE's current event can  
be accomplished on-line by going to [www.la-incose.org](http://www.la-incose.org)  
and navigate from the home page**

**"To register please visit [here](#)"**



### **Systems Engineering Education Opportunities from Southern California Universities**

**Michael E. Krueger  
Past President and  
Newsletter Editor for LA Chapter**

This is the second in a series of articles on University Systems Engineering Programs that have outreach programs to industry.

Last month Newsletter featured UCI's program and this month Ms. Anne Campbell of the California Institute of Technology provides an overview of their Systems Engineering program that is offered by its Industrial Relations Center.

### **Build Your Systems Engineering Skills: Caltech's System Engineering Center Helps Systems Engineers Excel**

Designing large and complex systems is a difficult task. The Systems Engineering Center of the California Institute of Technology Industrial Relations Center offers systems engineers and their colleagues who work in the systems engineering environment the opportunity to build the knowledge and skills to excel in these efforts.

Our programs are focused on specific company needs and guide technical professionals through the process of using advanced systems engineering methods to reduce cycle time, reduce the risk of project failure, and meet complex systems requirements. Our educational programs are developed and facilitated by world-class instructors who are selected based upon their extensive experience both doing systems engineering and managing major systems engineering projects in industry and government agencies.

The Center is currently conducting training for many of the major aerospace contractors, the Department of Defense and NASA. We provide company-specific certificate programs in systems engineering meeting our customers' challenging business goals. The goal of our programs is to help systems engineers to:

- Produce designs and cost estimates of complex products up to four times faster and cheaper
- Work with customers to better translate user needs into outstanding delivered products
- Define optimal verification and validation programs tailored to company needs and the customer's risk threshold
- Effectively use advanced information systems technology to increase product development productivity and manage design data and interfaces
- Manage risk in a cost constrained environment
- Conduct system-level trade studies considering performance, cost and schedule parameters and utilizing Cost-As-An-Independent-Variable (CAIV)

The Center offers the following Systems Engineering courses and programs:

#### The One Day Systems Engineering Overview

- Caltech's exclusive summary of the end-to-end systems engineering process
- What every aerospace engineer needs to know

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## Systems Engineering Implementation Workshops

- Our exclusive focused workshops for project teams
- Participating engineers apply systems engineering processes to solve actual project problems during the training

## Intensive Three-Day Systems Engineering Course

- Twenty-four hours of condensed training in the principles of systems engineering applied within practical, group problem solving applications

## 40-Hour Systems Engineering Certificate Program

- Five-days or 10 half-days of lectures and group exercises covering all aspects of systems engineering
- Single instructor or team teaching models available

## 56-Hour Systems Engineering Certificate Program

- Expanded topics and lectures with an in-depth threaded exercise, typically a full, one-day course per month for seven consecutive months. Team taught by our highly qualified instructors.

## Space Missions, Systems, and Subsystems Program

- An intensive, highly technical 40-hour training experience derived from Dr. Joel Sercel's graduate level Caltech course. A must for mission-system architects and a boost for all engineers working in the field of space systems.

**Ms. Anne Campbell** is Director of Programs of the Systems Engineering Center at the California Institute of Technology Industrial Relations Center where she is responsible for program and business development. She is also Deputy Director of the Industrial Relations Center, a leading provider of executive education programs for technology-based organizations. She joined Caltech in 1985 managing the Center's marketing and developing the international customized program business. Previously, Ms. Campbell worked for Rockwell International and Becton Dickinson.

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**Dinner Meeting**  
 Wednesday, August 20, 2003

**Location**  
 Aerospace Corporation

**Time**  
 Networking 5:30 pm  
 Speaker 6:30 pm

**Cost**  
 Members Free  
 Guests \$10.00

**Systems Engineering Revitalization at the Space and Missile Systems Center**

## Col. (Ret) Paul Humel, USAF The Aerospace Corporation

**ABSTRACT:** As space systems have evolved to support an ever-more-demanding user community, space-system developers face an increasing array of systems engineering and systems engineering management challenges. In the wake of acquisition reform, the government is once again looking to oversight vs. insight and taking back Total System Performance Responsibility (TSPR) to manage program risks and to ensure mission success. This presentation will cite specific examples of how Space and Missile Systems Center (SMC) is revitalizing systems engineering in the acquisition of space systems. Included in the revitalization are initiatives in training, common systems engineering processes, program baselining and the reintroduction of specifications and standards.



**BIOGRAPHY:** Paul Humel has over 25 years of Air Force and defense industry systems engineering experience. An Air Force Reservist, Mr. Humel recently completed a 15-month active duty tour at SMC where he was the Manager of Systems Engineering in the Systems Acquisition Directorate. He was responsible for implementing policy, processes, procedures, training and resources to revitalize Systems Engineering at SMC in response to new Department of Defense initiatives. He implemented several center-wide systems engineering initiatives, including a center-wide Systems

Engineering orientation class attended by over 2,500 SMC personnel, development of a nine-day Systems Engineering certificate program offered in connection with The Aerospace Institute and the California Institute of Technology, and an innovative program involving the exchange of selected SMC engineering and acquisition personnel with local industry.

### SECURITY:

Pre-Register and please bring two (2) forms of identification.

Aerospace is pleased to provide a venue for INCOSE speaker meetings. Because much of the work at this facility is for the Department of Defense, the facility has security requirements. Meeting the requirements allows entrance into the parking lot and subsequent entrance into the buildings. For US citizens (and foreign nationals with a green card), this includes the ability to provide Security a list of attendees ahead of time. An additional requirement for foreign nationals (no green card) is that Aerospace Security requires formal high level management cognizance of the visit and a minimum of 5 days is required to prepare the form, get it signed and delivered to Security. Your cooperation and observance of the security requirements is appreciated.

### DIRECTIONS TO AEROSPACE:

From the Douglas Street gate, continue straight (east) in towards the small power plant. Park on the right before reaching the power plant. The South Lobby is on your left (north) and hard to see until you're pretty close. The South Lobby will be open in spite of the construction project. Just follow the INCOSE signs.

From the southbound San Diego Freeway (Interstate 405):  
 Exit at El Segundo Blvd (La Cienega Blvd) (just past the I-105 interchange).  
 Turn left at the bottom of the ramp onto La Cienega.  
 At El Segundo Blvd., turn right.  
 Turn left on Douglas St.  
 Turn left into Aerospace

From the northbound San Diego Freeway (Interstate 405):  
 Exit at El Segundo Blvd. (just before the I-105 interchange).  
 Turn left at the bottom of the ramp onto El Segundo Blvd.  
 Turn left on Douglas St.  
 Turn left into Aerospace

From the westbound Century Freeway (Interstate 105):  
 Take the southbound I-405 exit.  
 Stay in the right lane.  
 Take El Segundo Blvd. exit (exit is before ramp merges with I-405).  
 Turn left at the bottom of the ramp onto El Segundo Blvd.  
 Turn left on Douglas St.  
 Turn left into Aerospace

From Los Angeles International Airport:  
 Exit airport to Highway 1 South (Sepulveda).  
 Turn left on El Segundo Blvd. (eastbound).  
 Turn right on Douglas St.  
 Turn left into Aerospace

## TUTORIAL

DOD Architecture Framework: Overview And Application Guidance

### DATE

Friday, September 26, 2003 (Reservations by September 12)

### TIME

9:00 AM to 5:00 PM; Registration begins at 8:30 AM

### LOCATION

Radisson Hotel at Los Angeles Airport  
6225 West Century Boulevard  
Los Angeles, CA 90045  
(310) 670-9000

This tutorial will discuss three ways to characterize a system: (a) models, (b) requirements, and (c) design. The tutorial will show how a system architecture serves to integrate these three aspects of the system. This approach leads to a more model-driven systems approach and allows you to “discover” the essential attributes of the problem space that must be addressed by the system solution. Architecture models are where these essential attributes are defined and evaluated. This approach to architecting will be described within the context of the C4ISR Architecture Framework.

The architecture also provides the unifying structure (or roadmap) for exploration of the problem space and for characterization of the solution space such that better decisions can be made. This tutorial will describe an approach for the flow down from the system purpose or mission need, down through operational requirements and concept of operations, and finally into system and lower-level specifications.

The New DOD Architecture Framework will also be described while highlighting the essential differences. Other architecture frameworks will be used and describe how they relate to the DOD version. Finally, a strategy and approach for development of the standard framework products will be described.



**LECTURER:** James N. Martin

James N. Martin is an internationally known writer and lecturer on systems engineering. He wrote one of the most widely read books on systems engineering, “Systems Engineering Guidebook,” published by CRC Press. His experience includes twenty years in systems development of telecommunications products and services (most of this with Bell Labs) as

program manager, systems engineering manager, system architect, requirements manager, and lead systems engineer. His experience with technology includes mobile wireless, underwater fiber optic, satellite broadband wireless, reconnaissance sensors and distribution networks, and airborne network hubs.

Mr. Martin is currently employed by The Aerospace Corporation. He is a system architect for communications networks and space systems and teaches at The Aerospace Institute and at seminars around the world. He led the development of ANSI/EIA 632, the US national standard that defines the processes for engineering a system. Mr. Martin graduated with

an MS from Stanford and a BS from Texas A&M. He is a Fellow member of INCOSE. He recently won an NRO Team Award for leading the architecture development effort for the Integrated Overhead Sigt Architecture.

### REGISTRATION:

**By September 12, 2003** Mail your registration to Saul Miller (mailing address and form are below). Checks must accompany the registration. Accommodations can be made for company checks. (go to website for registration form)

### QUESTIONS:

Saul Miller at 310-336-6869 or at [Saul.Miller@aero.org](mailto:Saul.Miller@aero.org)

### FEES:

The fee for participants is \$115 for members, and \$145 for non-members. Make checks payable to “**INCOSE-LA**”. Acceptable forms of payment are personal checks, bank drafts, and money orders. Credit cards and purchase orders are not accepted.

Mail completed form and check made out to “INCOSE-LA” to:

INCOSE-LA Chapter Tutorial  
c/o Mr. Saul Miller  
Aerospace Corporation  
P.O. Box 92957  
Mail Stop M4-916  
Los Angeles, California  
90009-2957

### LUNCH:

Continental Breakfast, and Lunch will be provided. If you have special dietary needs, please inform us of your preference.

### REFUND POLICY:

Substitutions are permitted until the day of the tutorial. Full refunds will be made prior to September 12. No refunds will be made after September 12. INCOSE-LA chapter reserves the right to cancel the tutorial with full refunds.

### PARKING:

A discounted rate of \$5.00 for self-park and \$7.00 for valet parking is available at the hotel

For additional information, Registration Form and Directions please visit the LA INCOSE Website [www.la-incose.org](http://www.la-incose.org) and select **Tutorials** on the left panel.

## The Board and Officers wish to welcome the following new members in the Los Angeles Chapter of INCOSE:

- |               |                    |                |                           |
|---------------|--------------------|----------------|---------------------------|
| Mrinmoy Paul  | The Boeing Company | Sung Hong      | The Boeing Company        |
| Bonnie Gorsic | The Boeing Company | Randolph Hall  | USC                       |
| Joel Heck     | U.S. Air Force     | Kathleen Crean | JPL/Cal Tech              |
| Edwin Lewis   | SAIC               | Kevin Cummins  | The Boeing Company        |
| John Fracisco | Northrop Grumman   | John Williams  | The Aerospace Corporation |
| James Young   | Veeco Instruments  | Jennifer Klein | Scitor Corporation        |

**Return Address:**

**2118 Colony Plaza  
Newport Beach, CA  
92660**

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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. 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:

#### 2003 Officers and Board

<b>President:</b>	Michael L. Dickerson	simimike@iname.com or	president@incose-la.org
<b>Vice-President:</b>	John Hsu	john.c.hsu@boeing.com or	vicepresident@incose-la.org
<b>Past President:</b>	Michael E. Krueger	michael.krueger@ase-consult.com or	pastpresident@incose-la.org
<b>Treasurer:</b>	Marsha Weiskopf	marsha.weiskopf@aero.org or	treasurer@incose-la.org
<b>Secretary:</b>	Paul Cudney	paulcudney@dslextreme.com or	secretary@incose-la.org
<b>Membership:</b>	Susan Ruth	susan.c.ruth@aero.org or	membership@incose-la.org
<b>Programs/Speakers:</b>	Gina Kostelecky-Shankle	Gina.M.Kostelecky@aero.org or	programs@incose-la.org
<b>Ways and Means:</b>	Thomas Kudlick	synchrocubed@aol.com or	waysandmeans@incose-la.org
<b>Tutorials/Education:</b>	Saul D. Miller	saul.miller@aero.org or	setraining@incose-la.org
<b>Communications:</b>	Ronald Williamson	ronald.w.williamson@aero.org or	communications@incose-la.org

Those interested in INCOSE membership wanting to be placed on our E-mail distribution please contact Susan Ruth - [susan.c.ruth@aero.org](mailto:susan.c.ruth@aero.org)  
Newsletter Editor - Michael E. Krueger - [michael.krueger@ase-consult.com](mailto:michael.krueger@ase-consult.com)