Vol. 14, Issue 2: April — May 2016

NEWSLETTER

2002, 2004-14 2003

2008, 2012 President's Award for Most Outstanding Chapter

2016 Regional Mini-Conference It's Here!

The Regional Mini-Conference is coming together and will be an excellent opportunity for systems engineering professionals, as well as those who would like to learn more about the discipline, to hone their skills, to gain a deeper understanding, and to take away interesting and valuable insights.

The 2016 Regional Mini-Conference on systems engineering will be two days packed with presentations and panels on research and advances in the profession. In addition to the conference, there will be two tutorials offered the day before (see article on page 7).

With its focus on "Systems Engineering Methods for the 21st Century," the conference will feature systems engineering professionals and students exchanging concepts and experiences in a forum designed to facilitating discussions of key topics related to the future of systems engineering.

A special attraction for the conference is the keynote speaker: Dr Azad Madni. Dr. Madni is an INCOSE Fellow and a Professor in the Daniel J. Epstein Department of Industrial and Systems Engineering in the Viterbi School of Engineering of the University of Southern California. In addition to his many other honors, he has recently be recognized as a Distinguished Engineering Educator.

(See "Mini-Conference Overview", continued on page 4)

Help us help you — update your INCOSE profile Log into the INCOSE home page and click on "profile home" to update or correct your information

2016 Regional Mini-Conference

Loyola Marymount University

April 9 and 10, 2016

- **Speakers:** ✓
- **Panels:** ✓
- **Papers:** ✓
- **Venue:** ✓
- **Menu:** ✓
- **Lodging:** ✓

All we need now is you!

Go to the conference website for all the details and to register:

www.rmc16.net

See article on page 3 and announcement on page 7 for more details.

Inside This Edition

Chapter Happenings!
The Strategic Planning Meeting

The Chapter hosted its first Strategic Planning Meeting (SPM) of the year on February 20, 2016 at the Northrop Grumman "S" Café in El Segundo. This meeting served as a transition from 2015 into 2016 and from the 2015 leadership team to the 2016 leadership team. Following the traditional "open meeting" format, Past-president Stephen Guine opened the meeting and reported on the Chapter's accomplishments for 2015. President Terry Rector then led the discussions of the Chapter's objectives for 2016. Both Terry and Stephen expressed appreciation for those who had come and for their contributions. New comers were welcomed and encouraged to bring new ideas with them. Neil Wigner was welcomed as our new web master.

Don't try to unscrew the inscrutable
Past-president Stephen Guine

During the SPM, the chapter's leadership summarized 2015 accomplishments, the Chapter's current status and conducted 2016-2017 Strategic Planning. Planning for 2017 is of note because of the Conference on Systems Engineering (CSER) to be held March 23 — 25, 2017 (see article on page 4).

The Chapter is continuing its member-focused activities of 2015, while seeking new and innovate ways to add more value for the membership. Toward this end, the Chapter will continue to host speaker meetings, tutorials, and networking events as opportunities for systems engineers to learn from others, to hone their skills, and to socialize the profession.

Providing more opportunities for individual members to participate was discussed at some length. Volunteering is the life's blood of the INCOSE-LA Chapter; the one resource of which there is never enough. The attendees discussed the benefits of volunteering — one being the opportunity to learn, develop, and practice new skills such as project organization and leadership, web page design and creation, and technical writing on a subject of interest to the volunteer, among others.

Volunteer!
You will learn something you never knew you needed to know

Vice-president Phyllis Marbach cited an example of what a member can do, having made a presentation on systems engineering and INCOSE at the Boeing Company. Northrop had a practice of "lunch and learn" seminars; an example of a similar forum in which systems engineering professionals could function as ambassadors in their organizations.

A proposed project for 2016 is the creation of technical products for the members, following the example INCOSE UK. INCOSE UK has produced a series of guides — "Z Guides" — each of which addresses an aspect of systems engineering. The guides are in the form of a one-page, double-sided, guide design to be folded up into three panels, giving a "Z" cross section.

(See "Strategic Planning Meeting" on page 11)

Regional Mini-Conference: Our Sponsors

The INCOSE Student Division

A Student Division is comprised of a group of undergraduate or graduate students who wish to become actively involved in INCOSE while enrolled in an accredited course of study at a college or university. Student Divisions are operated as a component of a nearby INCOSE chapter. In order for a Student Division to be created, it requires:

1) a student body interested in becoming involved with systems engineering and INCOSE,
2) a faculty member who is a member of INCOSE and willing to act as the Division mentor and liaison between INCOSE and the university, and
3) active sponsorship and participation by a chartered INCOSE chapter.

Students are the next generation of systems engineers and participation in INCOSE activities gives students an opportunity to gain exposure to systems engineering practices being used in the working world. It also gives them an opportunity to engage in career networking and mentoring opportunities. Students from Loyola Marymount and the University of Southern California are volunteering to make this conference a success.

The International Business Machines Corporation (IBM)

IBM was incorporated in the state of New York in 1911 as the Computing- Tabulating- Recording Company (C-T-R).

The growth and extension of C-T-R's activities made the old name of the company too limited, and, on February 14, 1924, C-T-R's name was formally changed to International Business Machines Corporation. By then, the company's business had expanded both geographically and functionally, including the completion of three manufacturing facilities in Europe.

During the 1930s, IBM continued to grow, and, thanks to a large inventory of equipment, IBM was ready when the Social Security Act of 1935 brought the company a landmark government contract to maintain employment records for 26 million people.

The 1940s marked IBM's first steps toward computing. The Mark I was completed in 1944 after six years of development with Harvard University. It was the first machine that could execute long computations automatically. Later in the decade, IBM introduced the Selective Sequence Electronic Calculator (1948) as the company's first large-scale digital calculating machine, the successful 604 Electronic Calculating Punch (1948), and the Card-Programmed Electronic Calculator (1949), the first IBM product designed specifically for computation centers.

(See "Sponsors and Exhibitors" continued on page 13)

Loyola Marymount University
Sponsor and Venue for the Conference

The venue for the conference is the new Life Sciences Building on the beautiful campus of Loyola Marymount University (LMU). The Life Sciences Building, a $110 million project that sets the standard for science education in the 21st century, has just received a Leadership in Energy and Environmental Design Gold certification from the Green Building Rating System.

The university is located just north of the Los Angeles airport (LAX) and is situated on a bluff overlooking Marina Del Rey and Santa Monica Bay. More than an attractive and modern facility, LMU is an academic center of excellence offering a broad spectrum of majors in engineering and computer sciences. Of special note, LMU hosts an active INCOSE Student Division.

The Life Sciences Building features an auditorium with 300 theater-style seats keynote and plenary sessions and multiple rooms for our technical workshop tracks. There will be ample opportunities for networking with your colleagues at the conference provided breakfasts and lunches in the LMU Cafeteria, including an evening reception and technical poster session.

Loyola Marymount is not only the venue for the conference, but is one of the sponsors as well.

Loyola Marymount University offers a rigorous academic experience to ambitious students committed to lives of meaning and purpose. The names “Loyola” and “Marymount” have long been associated with higher education in countries around the globe. Saint Ignatius Loyola, founder of the Society of Jesus, sanctioned the foundation of his order's first school in 1548. The Religious of the Sacred Heart of Mary have conducted educational institutions since their establishment in France in 1849 by Father Jean Gailhac. These two traditions of education have come together in Los Angeles as Loyola Marymount University.

The present university is the successor to the pioneer Catholic College and first institution of higher learning in Southern California. Rapid growth prompted the Jesuits to seek a new campus in 1917 and incorporate as Loyola College of Los Angeles in 1918. Relocating to the present Westchester campus in 1929, the school achieved university status one year later. Graduate instruction began in 1920 with the foundation of a separate law school. The formation of a graduate division occurred in June 1950, although the graduate work had formed an integral part of the Teacher Education Program during the preceding two years.

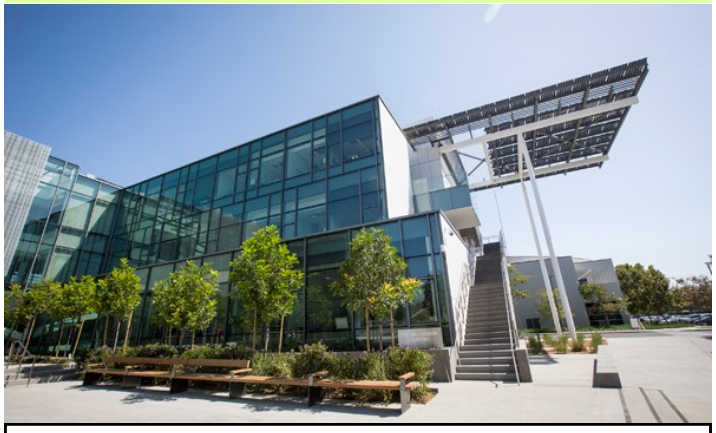
In separate, though parallel developments, the Religious of Sacred Heart of Mary (RSHM) began teaching local young women in 1923. Ten years later they opened up Marymount Junior College in Westwood, which grew to four-year status and began granting baccalaureate degrees in 1948. The school later transferred classes to a new campus on the Palos Verdes Peninsula in 1960. Eight years later, Marymount College moved again, this time to the Westchester campus of Loyola University as an autonomous institution. After five years of sharing faculties and facilities, Loyola University and Marymount College merged and formed Loyola Marymount University in 1973.

In articulating a vision for this unique collegiate enterprise, the Board of Trustees turned to the history of the 500 year old Jesuit educational philosophy, as well as to the history and traditions of the RSHMs and Congregations of Saint Joseph. They also recognized the riches of a variety of religious traditions represented among the dedicated faculty and staff, which complement and enhance the school's heritage of Catholic values. LMU features the Bellarmine College of Liberal Arts, the College of Business Administration, the College of Communications and Fine Arts, the Loyola Law School, the School of Education, the School of Film and Television, and the Frank Seaver College of Science and Engineering.

The host chapters of the Regional Mini-Conference wish to thank Dr. “Bo” Oppenheim, the Loyola University Student Division, and the staff and leadership of the university for their generous support and help in their unstinting contribution to the success of this conference.

To learn more about LMU, go to: http://www.lmu.edu/

Thank you, LMU!



LMU Life Science Building

Not a member? Join INCOSE!

Learn more about becoming a member by clicking on http://www.incose.org/membership/valueofmembership.aspx

Distinguished Engineering Educator Dr. Azad Madni

By Past-president Stephen Guine

Dr. Azad Madni has been honored as a Distinguished Engineering Educator by The Engineers' Council the annual Honors and Awards Banquet in March of this year.

With this award, the Engineers' Council recognizes individuals who are outstanding in professional qualities and have a top reputation for engineering education, mentorship and leadership. Candidates for this award are typically, but not limited to, senior university faculty. Candidates are either individuals who contribute significantly to students' academic and extracurricular engineering fulfillment and enrichment or scholars who have made significant contributions to academic or industrial research. Important criteria for this nomination include both the individual's entire career and civic contributions. No individual may receive this award more than once.

The INCOSE-LA Chapter is proud to call Dr. Madni one of our own. Not only has he been instrumental with continually advancing the academic research and implemented practice of systems engineering, but he has time and again shown himself to be a thoughtful mentor to those new to the field. It is of note that Dr. Madni was previously honored as a recipient of the INCOSE Pioneer Award (2011) in recognition of his work in the crucial frontiers of systems engineering and working effectively to advance the theory, tools and products required for the future of our profession.

INCOSE-LA SALUTES DR. MADNI IN RECEIVING THIS WELL-DESERVED HONOR.

(Mini-Conference Overview, continued from page 1)

The conference is scheduled for Saturday and Sunday, April 9 – 10, 2016, and will be held at Loyola Marymount University in western Los Angeles, California. The beautiful Loyola Marymount campus is near the beach and is conveniently located between the airport (LAX) and Santa Monica.

The conference is a team effort, being produced by the Central Arizona, Southern Arizona, San Francisco Bay Area, San Diego, and Los Angeles chapters of the International Council on Systems Engineering – the leading organization in defining the discipline and in equipping the practitioners. This conference is tailored to meet the needs of both practicing systems engineers and those who would like to learn more about this growing and important field.

The cost is $90.00 to $165.00.

For more information go to: For registration and more information go to: www.rmc16.net

Conference on Systems Engineering Research CSER2017

During the Strategic Planning Meeting (see article on page 2) the Chapter President Terry Rector led a discussion of a major activity for 2016: planning for the Conference on Systems Engineering (CSER) to be held March 23 — 25, 2017. As in the past, CSER 2017 will be lead by the team of INCOSE-LA and the University of Southern California (USC).

The Conference Managers are Terry Rector and Marilee Wheaton, both from the Aerospace Corporation. Also, as in the past, the Chairs for the conference will be from USC. The General Chairs are Prof Azad Madni and Prof Barry Boehm, and the Technical Chairs are Prof Roger Ghanem and Prof Daniel Erwin. The conference planners are seeking their support staff.

Interested in participating in this world class event?
Get in touch with terry.rector@aero.org.
Please have in mind what you would like to do.
All positions are open at this early stage.

CSER 2017 plans include sessions to address the following research topics:

- Formal Methods in Systems Engineering
- Engineered Resilient Systems
- Model Based Systems Engineering
- Systems and SoS Integration
- System Architecture and Complexity
- Trade-space Visualization and Analysis
- Cognitive Systems Engineering
- Cybersecurity Systems Engineering
- Lean and Agile Systems Engineering
- Cyber-Physical-Social Systems
- Systems Thinking and Complexity Management
- Infusion of System Science in Systems Engineering
- Uncertainty Quantification
- Smart Manufacturing
- Advancing Systems Engineering Education
- Systems Engineering and Decision Science

CSER 2017 plans include the following application areas:

- Autonomous Vehicle Networks
- Defense Systems and System-of-Systems
- Space and Aerospace Systems
- Financial Systems
- Global Supply Chains
- Healthcare Delivery
- Homeland Security
- Smart Manufacturing
- Medical Devices
- Sustainable Energy
- Transportation Systems
- Urban Systems and Infrastructure

Follow the progress to CSER2017 and opportunities to participate in future editions of the *Newsletter* and on the Chapter's website and social media.

Report from the International Workshop

The 2016 International Workshop (IW) was held January 30 through February 2, at the Marriott hotel in Torrance, California. Unlike the International Symposia, the IWs feature systems engineers of all levels and backgrounds engaging in working group sessions to contribute to the discipline.

The working group sessions advance INCOSE's major projects, coordinate development of international standards, explore systems engineering challenges in new sectors, and provide opportunities to meet and share best practice. There are two kinds of sessions at the IW:

1) Working sessions, in which the focus is on improving and completing working group products. Working sessions are ideal for contributing with and learning from experts in the field.

2) Outreach sessions, in which the focus is on disseminating the current state of the art to workshop attendees with limited history with the working groups. Attending an outreach session is the ideal opportunity to influence the future direction of a working group and, perhaps, the entry point for a deeper involvement in a working group.

Among the dozens of working groups, there was a strong emphasis on advancing the state-of-the-practice in Model Based Systems Engineering and extending Systems Engineering to other domains (e.g., Automotive, Healthcare, Transportation).

The opening plenary of the IW featured a comprehensive review of the performance of INCOSE over the last year and a look at what will be accomplished in 2016. The INCOSE Operations Manager, Christine Kowalski, presented statistics on the demographics of the membership. Statistics of note are that the Northrop Grumman Corporation has the most members amongst the companies on the Corporate Advisory Board, and that over half of the members of INCOSE reside in the Americas Sector.

There has been an increasing desire for INCOSE products, with the note that an updated version of the handbook had been released in July, 2015.

Outgoing President David Long talked about the growth of systems engineering and of the appreciation for the systems engineering profession, noting that there is the challenge of of continuing to increase general awareness of and appreciation for the systems engineering process as well as for the professionals who are trained and experienced in the science and discipline of systems engineering. Commented David, "sometimes we feel like Sisyphus" [Sisyphus was a legendary king of Corinth condemned eternally to repeat the cycle of rolling a heavy rock up a hill in Hades only to have it roll down again as it nears the top]. In terms of one's perspective of systems engineers, David further that the view from the stage was different than that of non-systems engineers. Indeed, from his perspective, the people in the audience appeared to be like Hercules.

David's comments included several observations:

- We believe the system prospective is essential to developing solutions.
- An important value of INCOSE is that we connect systems practitioners around the world.
- We champion the systems engineering perspective and the unique value of systems engineering.

This has been accomplished through the people of INCOSE and the products they have produced:

- Systems Engineering Handbook
- A guide for writing requirements
- Working Group products
- Othe publications
- Impactful forums at home and abroad'

David's concluding remarks included the observation that serving the practitioner as important as serving the theoretician. And he offered a challenge to leaders and managers: grow your people.

Incoming President Alan Harding spoke about the future. He considers it a privilege and an honor to be the President of INCOSE. He said that he is proud to be a practicing systems engineer. He commented that "what" systems engineering is is exciting, and that systems engineers are people who are passionate about making a difference.

Alan discussed his commitment to the INCOSE membership:

- I will work hard
- I will be authentic
- I will listen and learn
- I will engage as widely as I can
- I will lead and be advised by the Board
- I will set demanding but achievable targets
- I will ensure we are open and transparent
- I will be a good steward of INCOCSE

He had some recommendation for us systems engineers:

- Tell people about the value of systems engineering and how INCOSE helps you develop
- If you are a member of another professional organization, help both organizations to work together for the good of both organizations
- Offer to give guest lectures of provide mentoring advice to system s engineering student at local university and colleges

Chapters were similarly challenged to:

- Welcome interested people local meetings
- Engage local system engineers
- Use links with universities to offer guest lecturers, presentation inputs, member of advisory boards
- Offer up your proudest products

With IW2016 in our backyard, the INCOSE-LA Chapter also used the opportunity to host an evening soirée, with over 50 chapter members and guests in attendance. This is a networking event at which all members of the Chapter are welcome. In addition to the as-always fellowship with other members of the Chapter and members of other chapters, the Chapter was especially honored to have incoming President Alan Harding join the reception and to speak informally to the group. President Harding complemented the Los Angeles Chapter on its past work, and solicited the Chapter's support for future INCOSE efforts.

2016 Regional Mini-Conference
What You Can Look Forward To

The Program

The program for the 2016 Regional Mini-Conference is coming together as the teams of volunteers from the five chapters (Central Arizona, Southern Arizona, San Francisco Bay Area, San Diego, and Los Angeles) are putting the finishing touches on the program. Volunteers from the INCOSE Student Divisions, one of the sponsors, have been heavily involved in the preparatory work that started last year.

Keynote Speaker: Dr. Azad Madni

The conference is delighted and honored to have as the keynote speaker Dr. Azad Madni, an INCOSE Fellow and a Professor in the Daniel J. Epstein Department of Industrial and Systems Engineering in the Viterbi School of Engineering of the University of Southern California (USC).

The Opening Plenary and the Panels

Opening plenary: Welcome and logistics by Terry Rector and Dick Emerson, words from IBM, Dr. Azad Madni Speaker

Saturday morning panel: MBSE Making Systems Modeling Relevant, Rick Steiner facilitating

Saturday afternoon panel: Systems Engineering Career Path (student and early to mid-Career) S. Chiese facilitating, guest presenters: C. Dematteis, R. Hefner, E. Ordoukhanian, and Cpt. J. Homan.

Sunday afternoon panels:

- Using Systems Engineering in the Development of ITS Highway Projects, Systems Engineering Guidebook
- Using Systems Engineering in the Commercial UAV Industry, Development of Commercial UAVs
- Empowering Women in Systems Engineering and INCOSE.

Closing panel discussion: Systems Engineering and Project Management Interaction, featuring senior executives.

Presentations

The Technical Committee has selected presentations from the abstracts that were submitted from throughout the region from systems engineering industry professionals, and professors and students in the academic community. The titles of the presentations are:

- The Faustian Bargain of Requirements Management
- Developing Quality Aviation Systems through Rigorous Specification Development
- How Can Requirements for Requirement Statements be Satisfied?
- The Role of Systems Engineering in Large Scale Agile Projects
- Six Thinking Hats® and Lateral Thinking® value to Systems Engineers and Business Leaders
- Identify Value with Six Thinking Hats® in Agile Meetings
- Linking Reliability Analysis to the Model-Based Ecosystem
- Performing Systems Analysis Using MBSE and FMI (Functional Mock-up Interface)
- Changes from INCOSE Handbook V 3.2 to 4.0
- Architectural Structure and Ambiguity: The SE Vision 2025 Challenge
- Shoreline Surveillance and Defense Architecture Against Rockets
- Applying the Systems Engineering Process to a Conceptual Mercury CubeSat Mission
- Leveraging Automation in Complex Radar System Development
- Process Improvement at Vinyl Technology Inc.
- Process Thinking in Small Small Systems
- Effective Measures Can Protect the United States National Grid from Naturally Occurring EM Pulses
- Creating Resilient Systems in Crisis Environments
- Decision Support for Improved Hazard Analysis and Disaster Response
- Specialty Engineering Program Cross-Functional Work Product Integration and Optimization Assurance
- The Enterprise Integration Process
- Systems Engineering Practice on Gaming Development: Showcase of Student Competition
- Big Data Analytics: the Role of Analytics in Systems Engineering
- Big Data Analytics: “Lean Thinking”
- Using Systems Engineering to conduct Transportation Research
- The Future of Modeling Requirements in SysML
- A New Application for Systems Engineering: The Science of Laws
- Infrastructure Systems Characteristics and Implications
- Best Systems Engineering Practices for Ground Segment Acquisition
- A Systems Approach to Predicting Healthcare Failures
- GROUP FLOW: The Genesis of Innovation
- Value Based, Lean, Agile Systems Engineering for Captive Machine Shop Operations
- Adapting Systems Engineering to the Legal System
- Advancing Human Systems Engineering
- The Hard Facts of Soft Social Systems
- Systems Engineering Xenophobia: the Cure

Please come and join your colleagues for a weekend of growing, improving, sharing, and networking. The RMC team looks forward to seeing you there.

James Webb Space Telescope Speaker Meeting

By Edwin Ordoukhanian

On Tuesday, March 8, 2016, INCOSE-LA and the Student Division of the University of Southern California (USC) jointly hosted a speaker meeting on the USC campus. The event started with a networking session during which many students from USC got a chance to network with industry and INCOSE-LA representatives. Terry Rector and Edwin Ordoukhanian jointly gave a brief overview on the Los Angeles Chapter and reported on the International Workshop held in Torrance (see article on page 5).

The speaker for this event, Dr. Jonathan Arenberg from the Northrop Grumman Corporation, was welcomed by Dr. Azad Madni Director of Systems Architecting and Engineering and Faculty Adviser of INCOSE-USC Student Division.

Dr. Jonathan Arenberg

Dr. Arenberg is currently the Chief Engineer of James Webb Space Telescope (JWST), one of the largest and most complex telescopes every built. His talk was targeted to a large audience of physicists, electrical engineers, aeronautical and astronautical engineers, and systems engineers. In his talk Dr. Arenberg introduced the James Webb Space Telescope, discussing the scientific goals and how these science requirements impact the mission requirements and design. The James Webb Space Telescope is NASA's flagship space astrophysics mission, designed and built to see the furthest visible objects in the Universe. Dr. Arenberg discussed the main engineering challenges for this telescope in space, and at the end, he concluded with the current status of the telescope and the tasks to be accomplished before its being launched in October of 2018.

Dr. Arenberg has been with Northrop Grumman Aerospace Systems since 1989, having started his career with Hughes Aircraft Company. His work experience includes optical, space and laser systems. Dr. Arenberg has worked on such astronomical programs as the Chandra X-ray Observatory, and the James Webb Space Telescope. In addition, he helped conceive and develop the Starshade concept for the direct imaging of extra-solar planets. He has worked on major high-energy and tactical laser systems, laser component engineering, metrology and optical inspection issues. He is a member of the national and international standards organizations sub-committees charged with writing standards for laser and electro-optic systems and components. Dr. Arenberg is a member of the Society of Photo-Optical Instrumentation Engineers, the SPIE, American Astronomical Society, the American Association for the Advancement of Science, The American Institute of Aeronautics and Astronautics, and Sigma Xi.

Dr. Arenberg holds a bachelor's degree in physics and a master's and Ph.D. in engineering, all from the University of California, Los Angeles.

(See "Deep Space," on page 10)

Tutorials

April 8, 2016

Agile Systems Engineering Planning Using Six Thinking Hats™
and
Practical Aspects of System Modeling with SysML

Two tutorials are being offered on Friday, April 8, 2016, the day before the Regional Mini-Conference itself. The first is in the morning and the second in the afternoon.

Morning tutorial — Agile Systems Engineering Planning Using Six Thinking Hats™

Abstract:

Come to a tutorial to learn about the role of systems engineering on large-scale agile teams and about the value of Six Thinking Hats™ in agile planning. Phyllis Marbach and Laurie Buss will present the 2014 INSIGHT favorite article "The Role of Systems Engineering in Large-Scale Agile Projects" that explains what a systems engineer does and how it is different or similar to traditional systems engineering tasks. Certain planning meetings that agile teams conduct would benefit from Six Thinking Hats™ and Lateral Thinking methods that will be described by Laurie Buss. Included in the workshop will be hands-on exercises addressing current issues applicable to audience participants.

Agenda:

Introduction to Agile SE

Introduction to Six Thinking Hats™

Conduct planning for a real-world problem using Six Thinking Hats™ and Lateral Thinking Methods within the Agile planning construct.

Presenters' Biographies:

Phyllis R. Marbach recently retired from The Boeing Company's Defense Space and Security Division as a senior software engineer. Phyllis has over 30 years experience in aerospace programs such as satellites, chemical lasers, the International Space Station, and various propulsion systems. Currently she is a Scaled Agile Framework™ Version 4.0 Program Consultant. Phyllis was a Boeing Designated Expert in agile software development, software engineering and systems engineering. The past eight years in her role as an Agile Coach for the Boeing Enterprise, she has coached Unmanned Air Systems, Radio, avionics, and research programs.

Ms. Marbach can be contacted at prmarbach@gmail.com. Ms. Marbach has an Masters of Science degree in engineering from the University of California Los Angeles.

Laurie Buss is highly regarded in the international satellite industry. She has worked with and consulted for major corporations such as The Boeing Company, Globalstar, SES of Luxembourg, Orbital Sciences, Thales, Intelsat, and SpaceX, for spacecraft design and test, program management, strategic planning, insurance placement and claims, risk assessment, marketing and market analysis.

(See "Tutorials," on page 12)

San Francisco Bay Area Chapter
Los Angeles Chapter
San Diego Chapter
Central Arizona Chapter
Southern Arizona Chapter

Regional Mini-Conference 2016

April 9 – 10, 2016
Loyola Marymount University
Los Angeles, California

Research and Advancements in Systems Engineering Methods for the 21st Century

SYSTEMS ENGINEERING PROFESSIONALS AND STUDENTS EXCHANGING CONCEPTS AND EXPERIENCES IN A FORUM TO DISCUSS KEY TOPICS RELATED TO THE FUTURE OF SYSTEMS ENGINEERING.

STRENGTHEN YOUR CAREER AND MAKE IT GROW:
PANELS AND DISCUSSIONS ON CAREER GROWTH AND OPPORTUNITIES
PERSPECTIVES FROM VETERANS AND OUR NEXT GENERATION
PRESENTATIONS ON BEST PRACTICES AND LESSONS LEARNED
TOOLS AND FUTURE THINKING TO MAKE YOU MORE POWERFUL:
AGILE, LEAN, AND MBSE

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INCOSE International Council on Systems Engineering
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extension.uci.edu/systemseng

PROJECT PERFORMANCE INTERNATIONAL

NASA

USC Viterbi
School of Engineering

Keynote Speaker:

Dr. Azad Madni
The University of Southern California
Viterbi School of Engineering
Distinguished Engineering Educator

For registration and more information go to:
www.rmc16.net

Day-Before Tutorials: MBSE, Agile Systems Engineering Planning Using Six Thinking Hats ($30 for one, $50 for both, lunch included)

CONFERENCE COST:

Cost includes breakfast, lunch and Saturday night social

Non-INCOSE member	$165.00
INCOSE member	$150.00
Students, presenters, active military, senior members	$90.00

The Board of Directors wishes to welcome the following new members to 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 your INCOSE profile (at www.incose.org) to update your information.

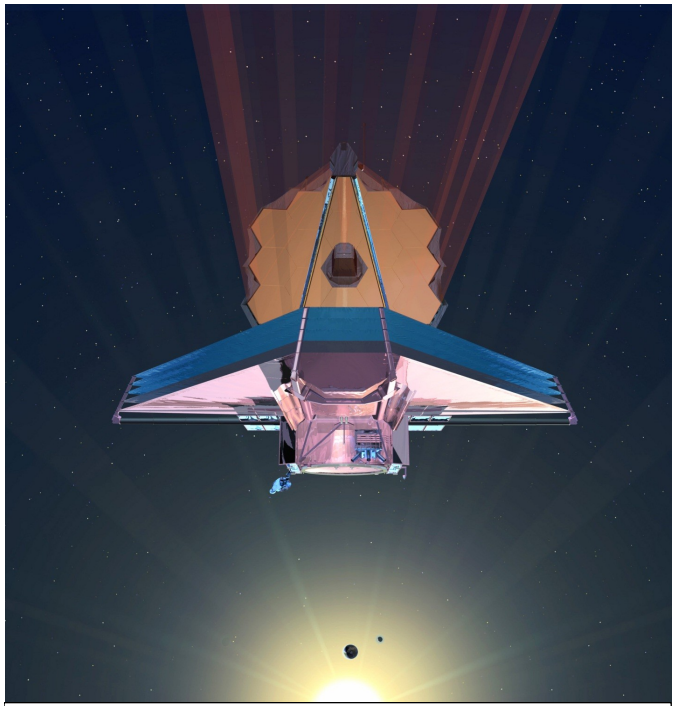
Name	Primary Organization Name	Division/Department
Abdulaziz Alothman		
Ted Valencia	CognoSeer Technologies	
Monica Jan	LightSpeed Innovations	
Kristopher Scher	Scitor Corporation	
James Hartney	Loyola Marymount University	
Sophan Im	Boeing Company, The	
Matthew Beck	Loyola Marymount University	
Mohammed Almoslut	Loyola Marymount University	
Bill Kaneshiro	Scitor Corporation	
Scott Boller	Aerojet Rocketdyne	Systems Engineering
Dr. Shane Dultz	Stratec Biomedical USA, Inc.	
Kurt Joob	Loyola Marymount University	
Osama Asiri	Loyola Marymount University	
Dr. Toni Boadi	California State University Dominguez Hills	Physics/Systems Engineering
Adam Contos	Giant Magellan Telescope Organization	
CRAIG ESTRIDGE	The George Washington University	Lockheed Martin Corporation
Daniel Lukasik		Parsons
Mr. John Rosica	NVIS/Barrett Communications LLC.	
James Humann	University of Southern California	1989
Thomas Brennan	Raytheon Corporation	
Bryon Berryhill		
Justen Harper		

(Deep Space, continued from page 7)

Attendees were Mr. Terry Rector from The Aerospace Corporation and INCOSE-LA's current president, Dr. Azad Madni from USC's Systems Architecting and Engineering Program and Astronautical Engineering Department, Dr. James Moore from Viterbi School of Engineering Dean's office, Mr. Stephen Guine from Northrop Grumman and INCOSE-LA's past president, Mr. Michael Wallace from Northrop Grumman, Ms. Susan Ruth from The Aerospace Corporation, Dr. Michael Sievers from JPL, Mr. Kenneth Cureton from USC, Ms. Karen Grothe from Loyola Marymount University, Dr. Malcolm Currie from INCOSE-LA, Mr. Jorg Largent from INCOSE-LA, USC graduate and undergrad students from various departments within Viterbi School of Engineering, and many INCOSE-LA members. This event was also webcast and over 20 people attended this meeting virtually.

Almost 50 people attended, all of whom enjoyed the presentation and appreciated Dr. Arenberg's insights into the lessons to be learned regarding systems engineering.

In keeping with the traditions of the test community, there was, or so the story goes, a laser test which was not going exactly as planned. Seems a lens cap had been left on the lens. After its discrete removal the test went well, with the only explanation, outside the test community, being, "he laid hands on it."



James Webb Space Telescope

(Strategic Planning Meeting, Continued from page 2)

The aim of the British "Z-Guides" is to provide focused, accessible, information which can be presented to individuals who are not directly involved in systems engineering on a day to day basis.

Several concepts were discussed as to how the Chapter could help students in high schools and colleges better understand and appreciate systems engineering. There are several members supporting Science, Technology, Engineering, and Math (popularly known as "STEM") programs.

Former INCOSE-LA President John Silvas presented a briefing on using systems engineering principles in game development. His goal is to provide a forum for sharing knowledge and technology relevant to the game engineering disciplines, encourage students (at the college and high school levels) interested in electronic game technologies to consider careers in science and engineering, and support development of electronic game industry standards. The leadership for the program plans to infuse systems engineering principles into the program in 2017. Fred Lawler discussed a developing Mars STEM event planned for September being jointly hosted by INCOSE-LA, and IEEE.

At the college level, the Chapter is working to increase its support for student divisions at the colleges in the Los Angeles area. The student divisions have returned the compliment through activities such as hosting a speaker meeting at the University of Southern California and support for the Regional Mini-Conference. INCOSE-LA currently supports three student divisions, (the University of Southern California,, California Poly Pomona, and Loyola Marymount University) and is working to develop a new chapter at UCLA.

The meeting concluded with President Rector thank those who attended and with the Board of Directors planning to provide the members of the Los Angeles Chapter with an ongoing and growing value from the Chapter.

Dr. Barry Boehm, INCOSE Fellow, Alan Harding INCOSE President, and Stephen Guine, INCOSE-LA Past-president at the soirée hosted by the Los Angeles Chapter during the 2016 International Workshop.

STAND UP, BE RECOGNIZED FOR THE WORK YOU DO!

Vice-president Phyllis Marbach, President Terry Rector, and Treasurer Harvey Soldan at work at the February Strategic Planning Meeting.

INCOSE-LA Needs You!

By Lin Yi, Communications Director

The Communications committee is looking for volunteers in both short-term projects and long-term positions:

- Website team member (1)
- Social media evaluation team member (2)
- *Newsletter* production team member (1)

Please contact communications@incose-la.org.

Not a member? Join INCOSE!

Learn more about becoming a member by clicking on http://www.incose.org/membership/valueofmembership.aspx

(Tutorials, continued from page 7)

In 2014, Laurie founded LBI Training Institute to teach Dr. Edward de Bono's powerful Six Thinking Hats™ and Lateral Thinking™ methods because they yield pragmatic innovative ideas, provide a framework for planning and decision-making, and contribute to the financial growth of the organization. Laurie is the author of "Group Flow: The Genesis of Innovation" published in the INCOSE Insight Journal October, 2015.

Laurie can be contacted at: laurie@LBItraining.com. Laurie Buss has a Bachelor's of Science degree in Aerospace Engineering from UCLA, a Master of Business Administration degree from George Mason University, a University of California Berkeley Haas School of Business Finance Certificate, and is a Certified Trainer in Six Thinking Hats™ and Lateral Thinking™.

Afternoon Tutorial: Practical Aspects of System Modeling with SysML

Abstract:

Model Based Systems Engineering (MBSE), or the use of a system model as a framework for system specification and analysis, has been a topic of rapidly growing interest over the past decade. Nonetheless, the fundamentals of modeling systems for this purpose do not seem to be broadly understood. This three-hour tutorial will provide an elementary background for the practice of system modeling, as well as a few practical considerations for those just getting started as system modelers. Topics to be covered include:

1) a brief overview of SysML as a standard system graphical modeling language,

2) a step-by-step example showing how a simple systems engineering problem can be solved using SysML in conjunction with other analytical tools, and

3) a discussion of several common conceptual stumbling blocks frequently encountered when first attempting to build system models.

No prior knowledge of SysML or system modeling is assumed, but a grasp of basic systems engineering concepts and terminology will be very helpful.

Presenter's Biography:

Rick Steiner is an independent MBSE consultant and systems modeling coach, with clients in various aerospace and defense companies. He retired after a 30-year career at Raytheon as an Engineering Fellow and a Raytheon Certified Architect. He has focused on pragmatic application of systems engineering modeling techniques and has been an advocate, consultant, and instructor of model-based engineering. Rick has served as chief engineer, architect, and lead system modeler for several largescale defense programs, incorporating the practical application of the Object-Oriented Systems Engineering Method and generation of Department of Defense Architecture Framework artifacts from complex system models.

Mr. Steiner continues to be a key contributor to the development of SysML, and contribute to the OCSMP certification. He is also co-author of "A Practical Guide to SysML", currently in its 3rd edition.

Rick is an avid amateur astronomer, auto restorer, bass guitarist, Church volunteer, and recumbent bicyclist.

Details:

8:00 a.m. to 12:00 noon, Agile Systems Engineering Planning Using Six Thinking Hats tutorial™

12:00 to 1:00 lunch for participants in both tutorials

1:00 p.m. to 4:00 p.m. Practical Aspects of System Modeling with SysML.

(\See "Directions," continued on page 15)

Authorised Charge for Portage
3 Anna
PER HEAD LOAD UP TO ONE MAUND PER TRIP
Please do not pay more than the authorised charge even if demanded by the licensed porters.
Pleas do no deal with porters without buckles or badges.
Western Railway of India Time Table July 1956

2016 Board of Directors

Elected Officers			**Elected At-large Directors**		
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Vice President	Phyllis Marbach	prmarbach@gmail.com	Programs	Dr. Rick Hefner	rhefner@caltech.edu
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Appointed Positions					
Newsletter Editor	Jorg Largent	jorg.largent@incose.org	Student Division Ambassadors	Scott Birtalan	scott.birtalan@ngc.com
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Professional Networking Chair	Scott Birtalan	scott.birtalan@ngc.com	New Member Ambassador	Collette Kurtz	kurtz905@aol.com
Representative to the SF Valley Engineer's Council	Stephen Guine	Stephen.Guine@ngc.com	Volunteer Coordinator	Karen Miller	karmill888@aol.com

(Sponsors and Exhibitors, continued from page 2)

During the 1950s IBM made significant strides in increasing the power and speed of computers while reducing the size with a progression from electromechanical switches to vacuum tubes to transistors. In 1957 IBM introduced FORTRAN (FORmula TRANSlation), a computer language based on algebra, grammar and syntax rules. It became one of the most widely used computer languages for technical work.

1981 coincided with the beginning of a new era in computing. Thanks to the birth of the IBM Personal Computer or PC, the IBM brand began to enter homes, small business and schools.

The IBM PC brought together all of the most desirable features of a computer into one small machine. When designing the PC, IBM for the first time contracted the production of its components to outside companies. The processor chip came from Intel and the operating system, called DOS (Disk Operating System) came from a 32-person company called Microsoft.

The growth and innovation associated throughout IMB's history has continued into the Twenty-first Century with a broad spectrum of hardware and software products that serve virtually all aspects of modern life. IBM produces several families of software products including security, cognitive (Watson), analytics, business solutions, mobile and social and IT infrastructure, the latter including Rational DOORS.

The Raytheon Corporation:

In 1922 Raytheon was established in Cambridge, Massachusetts, home of the Massachusetts Institute of Technology (MIT), as the American Appliance Company.

The company's founders were Vannevar Bush, who would become dean of MIT's School of Engineering; Laurence Marshall, an engineer; and Charles G. Smith, a scientist who had done work on the electrical properties of gases.

During World War II Raytheon supplied 80% of the magnetron tubes used in American and British radars. After the war Raytheon began offering civilian products, the microwave being among the most famous. Raytheon engineer Percy Spencer discovered microwave cooking when, as he stood in front of an active magnetron, a candy bar in his pocket began to melt. Intrigued, he sent out for popcorn kernels – and they began to pop.

In the decades that followed, Raytheon employees would build on the company's reputation for technology and innovation leadership. Today it stands as a global technology leader specializing in defense, homeland security and other government markets.

Raytheon today is a unique technology company and a world leader in defense electronics, with a broad range of products, service and capabilities. The proud legacies of Raytheon, E-Systems, Texas Instruments Defense, Hughes Aircraft and others have come together to form one company with one vision: One global team creating trusted, innovative solutions to make the world a safer place.

The Aerospace Corporation

The Aerospace Corporation has provided independent technical and scientific research, development, and advisory services to national security space programs since 1960. The corporation operates a federally funded research and development center for the United States Air Force's Space and Missile Systems Center and the National Reconnaissance Office. The corporation also applies more than 55 years of space systems experience to projects in the national interest for civilian agencies as well as commercial companies, universities, and international organizations.

The Aerospace Corporation functions as the nation's independent testing, assessment, and research center for national security space systems, specializing in advanced military space systems. Along with supporting the effective and timely development and operation of national security systems through rigorous scientific research and application of advanced technology, our technical teams also focus on developing and integrating new technologies to enhance existing space systems.

Research is focused on fields pertaining to space and space-related systems, including electrical power systems for rockets and spacecraft, microelectronics, optoelectronics and microelectromechanical systems, laser technologies, active optical remote-sensing systems, optical communications, fiber-optic sensor applications, and applications of atomic physics.

The Aerospace Corporation's fundamental research and development specializes in advanced military and civilian space systems. These space systems utilize aspects of virtually every physical science and must operate in the harshest and most unforgiving of environments. To ensure mission success, Aerospace recognizes the necessity of conducting research and development in a single location, which allows for complementary knowledge-sharing among our scientists and engineers from a wide variety disciplines, as well as ease of interdepartmental support when necessary.

Raytheon's Physical Science Laboratories provide a secure, self-contained organization with resources powerful enough to allow complete self-reliance.

Both corporately and through the activities of individual employees, The Aerospace Corporation has a long history of strong support for the systems engineering discipline and the Los Angeles Chapter of the International Council on Systems Engineering.

The University of California, Irvine, Extension

Established in 1962, the University of California Irvine (UCI) Extension has been offering continuing education for adult learners for over half a century. Today they maintain over 30,000 enrollments from students worldwide each year and offer hundreds of exciting courses and programs to local, regional and global constituencies. The UCI Extension offers a Systems Engineering Certificate Program as well as courses in Systems Engineering and Embedded Systems Engineering, among others.

(See "UCI Extension," on page 14)

(UCI Extension, continued from page 13)

The UCI Extension offers over sixty certificates and specialized studies programs on campus and online designed for the working professional who seeks career advancement and personal enrichment. As an integral part of UC Irvine, Extension seeks to support UCI's reputation for innovation. Their Distance Learning Center provides campus and other strategically selected organizations with distance learning services, including the development and delivery of courses using online technology. The Distance Learning Center is dedicated to the highest quality instruction, employing professional levels of instructional design, the appropriate use of technology, and the most qualified and best-trained instructors.

The University Extension is also proud to announce UC Irvine's acceptance in the OpenCourseWare Consortium (OCW). UC Irvine is the only west coast university to become a member of the OCW. UC Irvine's OCW is a large-scale, web-based resource that houses educational assets that are discoverable, searchable, modifiable, and free and easily available. This site offers access to UC Irvine Extension's online continuing education offerings. For more information about UC Irvine's OCW initiative, visit ocw.uci.edu.

The California Institute of Technology (Caltech)

The California Institute of Technology (Caltech) is a world-renowned science and engineering research and education institution, where extraordinary faculty and students seek answers to complex questions, discover new knowledge, lead innovation, and transform our future. The mission of the Caltech is to expand human knowledge and benefit society through research integrated with education. Caltech investigates the most challenging, fundamental problems in science and technology in a singularly collegial, interdisciplinary atmosphere, while educating outstanding students to become creative members of society.

Founded as Throop University in 1891 in Pasadena, California, and renamed the California Institute of Technology in 1920, the following is a modest sampler of Caltech's contributions and activities.

The Jet Propulsion Laboratory was founded by Caltech in the 1930s and has been managed for NASA by Caltech since 1958. Their activities include nineteen spacecraft and eight instruments employed in active missions. Recently launched missions include the Mars Science Laboratory, Juno, Aquarius, and NuSTAR – the Nuclear Spectroscopic Telescope Array mission.

Caltech is active in the earth-based International Observatory Network with facilities around the world, from the W. M. Keck Observatory in Hawaii to the Palomar Observatory in California and the W. M. Keck Array in Antarctica.

Caltech is internationally recognized for excellence in geophysical research and the Caltech Seismological Laboratory – the preeminent source for earthquake information in Southern California and around the world.

Caltech has been active in supporting INCOSE-LA and has educated many systems engineers on the systems engineering process, as far back as 1994.

Project Performance International

Project Performance International (PPI) has earned a worldwide reputation for providing training of the highest quality, in the major disciplines necessary to achieve successful project outcomes, in all sectors. PPI works with clients of all sizes, from Fortune 100 companies to small start-up companies.

PPI's most popular topics are:

- Systems Engineering
- Requirements Analysis and Specification Writing
- Engineering Management
- Requirements, OCD & CONOPS in Military Capability Development (Operational Concept Description and Concept of Operations)
- Human Systems Integration
- Design
- and much more

PPI is a truly international company, with its head office in Australia and courses, both public and on-site, being performed over six continents.

No Magic

Established July, 1995, No Magic was founded with the single vision that there is "no magic" to developing better software. Company leadership believed that investing in rigorous staff training and in a disciplined software development process were key factors in enabling company success.

No Magic developed a progression of tools, starting with "MagicDiagrams." The project name was changed to MagicDraw, and in July, 1998 MagicDraw version 1.0 was released. Two months after the initial release, MagicDraw was awarded the prestigious 100% Pure Java Certification by Sun Microsystems.

Since that time, MagicDraw has gained enormous popularity among users. In 2002, the product received the prestigious Java Developer's Journal Award as the Best Java Modeling Tool and Best Team Development Tool. Today, No Magic continues to invest in tools for developers. The company continues to expand the MagicDraw product line to feature tools not only for the designer but also for IT and business professionals, specifically software and business architects.

The concept, "No Magic Accelerates the Model Driven Enterprise" is just as true today as it was a decade ago. MagicDraw is a trusted brand among Global 500 energy, automotive, financial, logistics and telecommunications companies, NASA, and other entities whose software development relies on a robust No Magic offering.

In addition to the product line, No Magic, Inc. provides professional services to corporate clients in the United States, Europe and Asia. They assist our clients in all or part of the full life cycle of software projects - design, development, testing, documentation, installation and training.

No Magic is a member of OMG (Object Management Group, a standards organization developing UML, CORBA, MDD and other standards), CodeGear and Sun Technical Partner.

(See "Trojans," continued on page 15)

(Trojans, continued from page 14)

The University of Southern California

In the early 1870s a group of public-spirited citizens led by, Judge Robert Maclay Widney, dreamed of establishing a university in the Los Angeles region. Inn 1879 Widney formed a board of trustees and secured a donation of 308 lots of land. The gift provided land for a campus as well as a source of endowment, the seeds of financial support for the nascent institution. USC began with 53 students and 10 teachers in 1880. Today, USC is home to more than 41,000 students and nearly 3,800 full-time faculty.

In 1925 the School of Engineering opened. The growth continues as USC has become a center of excellence and a leader in liberal arts, medicine, the sciences, and engineering. The USC Viterbi School of Engineering is innovative, elite and internationally recognized for creating new models of education, research and commercialization that are firmly rooted in real world needs. The school's first priorities are the education of outstanding students and the pursuit and publication of new research.

As the school's faculty and students extend the frontiers of engineering knowledge through their research, they also apply engineering and technology to address societal challenges. The school stimulates and encourages qualities of scholarship, leadership, ambition and character that mark the true academic and professional engineer — to serve California, the nation and the world.

Vitech

Founded in 1992 by David Long, Vitech Corporation is dedicated to the development and application of innovative engineering and business process systems approaches to solve the challenges of designing integrated systems. Vitech developed and commercialized CORE™, – an integrated, model -based system engineering software tool which incorporates the key components of building a system: people, processes, data, and documentation. Today, there are thousands of CORE users across the globe - along with more than 80 universities who have used the program worldwide. Through ongoing technical leadership and insight in the industry, Vitech continues to provide innovative solutions to enhance best practices, advance the profession, and further evolve the systems engineering discipline.

Vitech provides a wide range of solutions, including requirements management software, test and evaluation, enterprise architecture software, modeling and simulation and SysML modeling. Vitech produces systems engineering tools, CORE, GENESYS, while providing a wide range of services, training, and resources.

Maximum weight and Dimensions of Packages Accepted for Dispatch.—Over the Broad and Metre Gauge lines no package exceeding five maunds in weight or 8 feet by 5 feet by 4 feet in outside measurement and over the Narrow Gauge lines no package exceeding three maunds in weight or 4½ feet by 3½ feet by 3 feet in outside measurement will be accepted for carriage except by previous arrangement.

Western Railway of India Time Table July 1956

Jama Software

Jama Software is the definitive system of record and action for product development. The company's modern requirements and test management solution helps enterprises accelerate development time, mitigate risk, slash complexity and verify regulatory compliance. More than 600 product-centric organizations, including NASA, Thales, Boeing and Caterpillar have used Jama to modernize their process for bringing complex products to market. The company is headquartered in Portland, Oregon. For more information, visit jamasoftware.com.

The Institution of Engineering & Technology (IET)

The IET is a world leading professional organization sharing and advancing knowledge to promote science, engineering and technology across the world. The IET has more than 150,000 members worldwide in 127 countries. It was formed in 2006 by a merger of the Institution of Electrical Engineers (IEE) and the Institution of Incorporated Engineers (IIE).

Shirley Tseng of the Los Angeles Chapter, chatting with Rick Steiner of the San Diego Chapter during the International Workshop

(Directions, continued from page 12)

Where:

The Aerospace Corporation
200 N. Aviation Boulevard
El Segundo, California 90245

Closest freeway exit: El Segundo Boulevard exit from the 405, north or south.

Proceed west on El Segundo Boulevard to Aviation Boulevard – the first major intersection west of the freeway. Turn right (north) and proceed a short distance past the bakery. The Aerospace Corporation is on the right the next building after the bakery.

Coming west on the 105? Go south on the 405 to the El Segundo Boulevard Exit.

Hosts: INCOSE Chapters: Central Arizona, Southern Arizona, San Francisco Bay Area, Los Angeles, and San Diego

Cost, including lunch:

- $30.00 for either tutorial
- $50.00 for both tutorials

For registration and more information go to: www.rmc16.net

INCOSE-LA Chapter NEWSLETTER
Vol. 14: Issue 2, April — May 2016

Return Address:

PO Box 10969
Westminster, CA 92685-0969

Forwarding Service Requested

The International Council on Systems Engineering (INCOSE) is a not-for-profit membership organization founded to develop and disseminate the interdisciplinary principles and practices that enable the realization of successful systems. INCOSE's mission is to share, promote, and advance the best of systems engineering from across the globe for the benefit of humanity and the planet.
The Los Angeles Chapter meets several times per year for speaker meetings and, in addition, sponsors tutorials, mini-conferences and other activities of interest to those in systems engineering or related fields.

UPCOMING EVENTS

For more details on Chapter-sponsored events and registration, go to incose.org/los-angeles

Tutorials before INCOSE Regional Mini Conference
Date: April 8, 2016 - 8:00 AM - 4:00 PM PT
Location: 200 N. Aviation Boulevard, Building D8, El Segundo
Venue: The Aerospace Corporation
For registration and more information go to: rmc16.net

INCOSE Regional Mini-Conference 2016
Date: April 9, 2016 - April 10, 2016 - 8:00 AM - 5:00 PM PT
Location: Los Angeles, California, USA
Venue: Loyola Marymount University
For registration and more information go to: rmc16.net

INCOSE-LA Professional Networking Event
Date: April 20, 2016 - 5:30 PM - 8:00 PM PT
Location: 20 E. Colorado Blvd., Pasadena, California, USA
Venue: King's Row Gastropub
Look for a Reflector Notice in your email, and check the Chapter website for more details: incose-la.org

INCOSE-LA Speaker Meeting
Date: May 10, 2016 - 5:30 PM - 8:00 PM PT
Details in work.
Look for a Reflector Notice in your email, and check the Chapter website for more details: incose-la.org

INCOSE International Symposium 2016
Date: July 18, 2016 - July 21, 2016
Location: The Exchange - Edinburgh. Scotland
Venue: Edinburgh International Convention Centre
Details will be available on the INCOSE website: http://www.incose.org/symp2016/home

Fifth Annual Mars (& Juno!) Update & LA/OC Society Expo
Date: September 10, 2016 - 1:00 pm - 5:00 pm PT
Location: Redondo Beach, CA, USA
Venue: S-Café at Northrop-Grumman
Cost: FREE
Look for a Reflector Notice in your email, and check the Chapter website for more details: incose-la.org

Future INCOSE Networking Events Tentative Dates/Locations:
May 18, 2016 – Antelope Valley
June 14, 2016 – Networking for Engineers
July 20, 2016 – West LA/South Bay
September 21, 2016 – Orange County
November 16, 2016 – Ventura County
December 10, 2016 – INCOSE Holiday Party
Conference on Systems Engineering Research (CSER) 2017