

Academic News

How will INCOSE benefit from this project? "INCOSE's vision is to establish a comprehensive systems engineering professional development capability," explained Perry. "While they have many of the necessary pieces in play, there is no integration of these systems to ensure they operate together. This problem is what our team will try to solve."

The students were grateful for the project, the professional interaction, and the trip.

"This seems to be a very exciting project for all of us and something quite different from what we are used to as students of industrial engineering," Jaiswal said. "Systems engineering seems to be coming up in a big way and through this project we hope to learn more about the different processes that go into developing a comprehensive system."

"The project is really interesting because it uses the problem-solving skills of an engineer in an entrepreneurial application by creating a business model," said Moore. "The trip was incredible and our team was so thankful for the opportunity to interact with leaders of INCOSE while enjoying the beautiful weather of Los Angeles."

In addition to nailing down a senior project idea, benefits of the trip included connecting with people and companies at the workshop, and learning from INCOSE leaders.

"It was a great way to kick-start our project and a good opportunity for us to get closer as a team," concluded Bozbag.

Dr. Kenley recently was appointed as the INCOSE Associate Director for Professional Development reporting to President-Elect Garry Roedler. The idea of sponsoring a senior design project with INCOSE sprang from his participation in the Purdue Entrepreneurial Leadership Academy that equips faculty members with training in entrepreneurship and small grants from the Purdue Research Foundation to support faculty-driven entrepreneurship projects.

"When I proposed this project to President-Elect Roedler, he was very supportive, especially when we discussed the fact that the professional development capability is targeted at the demographic group that our students belong to," said Kenley. "I knew it might be a stretch for our undergraduates to take on this project, but the promise of a trip to Los Angeles in January definitely had some appeal. We are delighted with the capabilities, experience, and enthusiasm of students who came forward, and we are confident that they will help INCOSE to accelerate its efforts."

Sigma Theta Mu Charters Its First Three Chapters

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Sigma Theta Mu, founded at the 25th Annual International Symposium of the International Council on Systems Engineering, was established with the

support of INCOSE to mark in a fitting manner those who have conferred honor upon the university they are currently attending or their alma mater by distinguished scholarship in the study of systems or the field of systems engineering. This is an important milestone in the maturation of our field and parallels the establishment of other comparable discipline-specific honor societies.

At the 2016 International Workshop, the Founding Board (Michael J. Vinarcik, ESEP-Acq [President], Art Pyster, Ph.D. [Treasurer], and C. Robert Kenley, Ph.D., ESEP [Secretary]) provisionally approved the charter requests for the first three chapters of Sigma Theta Mu:

- Michigan Alpha: University of Detroit Mercy (UDM)
- New Jersey Alpha: Stevens Institute of Technology
- Virginia Alpha: Old Dominion University

On February 11, Michael Vinarcik, President, conducted an induction ceremony for Robert Kraus, Arun Sivan, and George Papaioannou. They are graduating from the UDM MS Product Development Program (MPD) and have the distinction of being the first three student members of Sigma Theta Mu.

Universities with undergraduate and graduate programs in systems-related disciplines may petition the Board to establish a local chapter of Sigma Theta Mu. For more information, see www.sigmathetamu.org.

EWLSE at IW 2017

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Empowering Women as Leaders in Systems Engineering (EWLSE) again held engaging, well-attended sessions at the International Workshop (IW) on Monday afternoon, January 30, 2017. The first session, led by Alice Squires, EWLSE Founder, was an introductory session. Here, Alice presented an update on EWLSE progress with a full year of the initiative in action. She specifically noted a better online presence and a strong start on the mentoring program. Following her update, attendees shared personal background information so that others in the group understood where they were coming from, along with their Most Empowering Success from 2016 and Greatest Leadership Challenge going forward in 2017. Below we share the feedback from this session. As you read the comments, we encourage you as readers to reflect on where you have similarities and differences.

EWLSE at IW 2017

The second session was a breakout session, where attendees were broken into four teams to collaborate and determine 'Breakthrough Ideas for Gender Parity in Engineering.' Attendees commented that the session was enlightening, lively, and fun. We encourage you to join us at one of our upcoming events – a few of which are listed below!

EWLSE IW Introductory Session

Most Empowering Success from 2016

Below you will find some of the exciting things EWLSE 2017 IW attendees accomplished in 2016. What were some of your most empowering 2016 moments as an engineering professional?



- Turned a customer into a client
 - Led one of the highest funded projects; project led to 4 patents
 - Retired from large company culture; chose to retire
 - Founded the product development excellence team
 - Facilitated the integration of test, systems, hardware, and software through one large face-to-face meeting
 - Initiated the practice of capability leaders presenting directly to NASA
 - Switched companies
 - Built acceptance of systems engineering in the institution
 - Mentored a woman with great success where we both benefited from the relationship
 - Participated in important research projects
 - Initiated new business
 - Addressed how change management impacts requirements management
 - Was able to get to the INCOSE IW

- Stood up a team of 6 students to collaborate successfully virtually on the design of an aircraft
 - Convinced 4 of 30 men to stand up the systems engineering process
 - Part of first product release for a new company
 - Helped team recognize the need for systems engineering as a discipline
 - First woman in role driving the implementing of systems engineering in the company
 - Awarded research grant for idea with several student teams
 - Represented EWLSE at APCOSEC
 - Re-elected INCOSE Secretary, thank you
 - Elected INCOSE chapter president with five new officers representing diversity in race, gender, and age
 - Recognized importance of emergent properties in domain that led to implementing new systems engineering focused process
 - Initiated future female leaders in systems engineering program in region with 10 women in program
 - Survived first year of doctorate
 - Delivered two papers at INCOSE IS 2016
 - Initiated the INCOSE Oil and Gas Working Group
 - Role as General Manager of our global group
 - Moderated INCOSE IS 2016 technical session EWLSE panel with strong attendance, raising awareness and areas of conflict in public audience



EWLSE at IW 2017



Top Leadership Challenge Moving Forward in 2017

Here we list find some of the challenges EWLSE attendees are facing. Do you experience these as an engineering professional? How would you advise navigating these? We welcome your input!

- Finding resources, getting funding
 - Growing systems thinking and systems engineering in company
 - Applying lessons learned to next project
 - Time constraints, money constraints
 - Transitioning to retirement
 - Impactful communication on why systems engineering is important
 - 11% women submitting in ~ 400 abstracts
 - Bringing women in systems engineering back into the fold
 - New model for how we managed specialty areas
 - Hard to get buy-in in systems engineering
 - Need solutions now, time pressure
 - Stove-piped interfaces
 - Primary Investigator on top projects
 - Bringing in STEM related careers
 - Becoming part of systems engineering team
 - Cultural barriers to adoption of systems engineering process
 - Growing start-up
 - Addressing “troublemaker” “secret society” views
 - Combined vision of implementing MBSE
 - Bigger scope for implementing systems engineering
 - Millennial needs and aging workforce impact

- Sexual assault on campus
 - Hiring cyber security – no women
 - Positions coming up in INCOSE, president elect
 - Shift of focus of business where women no longer in leadership
 - No official systems engineering – continue the theme
 - Keep going without support
 - Taking forward program and changing negotiations
 - Finishing doctoral while working INCOSE IS 2018
 - Upper management does not communicate
 - Focus on Change management



Breakthrough Ideas for Gender Parity in Engineering

At the INCOSE IW the second EWLSE session was a brainstorming session on “Breakthrough Ideas for Gender Parity in Engineering.” The premise of the brainstorm is that progress has been very slow or stalling for increasing women in engineering, particularly systems engineering. The exercise was to address: What are breakthrough ideas to the goal of achieving gender parity within 20 years. A tall order, but the participants

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in the EWLSE brainstorming session formed four groups of about 5-6 people in each and were provided ideas on visioning for a future of gender parity. The teams were: Team Amazing, Team Wonderful, Team Diversity, and Team Respect (all self-named). The themes that came forward included: changing culture within and outside engineering companies, creating advocacy and self-accountability throughout organizations, and impacting the future through the education system. Changing culture received the greatest dialogue by all the teams. Internal culture ideas included respect for work/life integration choices, creation of explicit local culture on teams to level the playing field, and conscious creation of opportunities for women leaders (making the promotion path explicit, not implicit to the in-crowd). External culture included changing pop-culture's portrayal of "women's work or roles" and funded research on the value of gender diversity, specifically in engineering. For the theme of creating advocacy and self accountability for gender parity, ideas were: creating explicit champions in the engineering line management for gender parity, training all managers to be advocates for diversity (in particular gender parity), providing mentoring groups and nurturing a mentoring environment, and encouraging everyone to self-monitor to make the culture gender-friendly. The last theme, was impacting the future through the education system. The ideas for this theme included creating more gender parity among faculty, pairing women students (in particular graduate students) with industry mentors, training engineering faculty on implicit bias and diversity awareness (particularly aimed at gender issues), hosting women engineers as visiting lecturers for engineering classes, and sponsoring "take a girl to work" days regularly (not just daughters).

There was lively discussion during each group's brainstorm, more people joined as the teams reported out and discussions increased in animation. We intend to further the conversation at the Conference on Systems Engineering Research (CSER) at Redondo Beach in Los Angeles with an EWLSE panel to be held 10:30-noon Saturday, March 25th, and again at the INCOSE IS 2017 with an EWLSE panel "Systems Engineering Leadership: Navigational Instruments and Guides."

Interested in joining EWLSE? We welcome you!

Join EWLSE through www.incose.org:

- Login to your member account
- Select Profile Home
- Scroll to My Committees/Working Groups
- Select Browse/Join a Working Group
- Select "Empowering Women" on the right
- Scroll down to the Committee Tasks
- Select "Join this Working Group"

Tranche 1 Winners

We are pleased to announce funding for two proposals under Tranche 1 of the Local Chapter Outreach initiative. The Winning Chapters are GfSE and the South African Chapter.

- GfSE – to support them working on development of SysML standards into the German automotive industry with PROSTEP and the OMG.

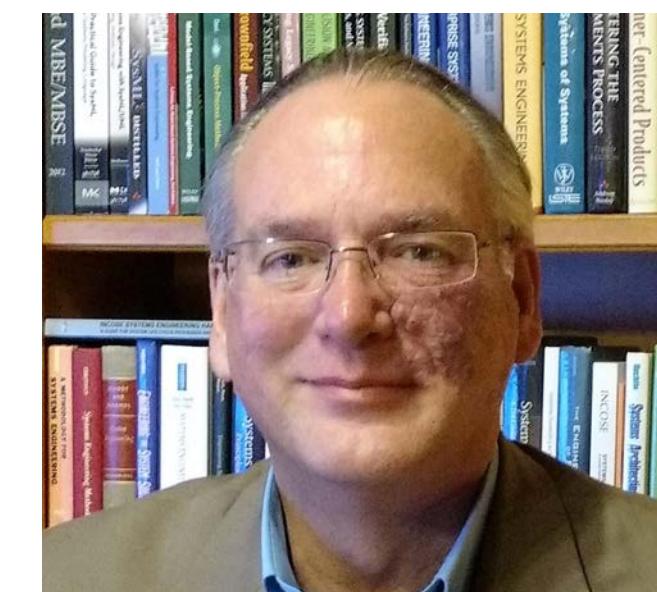
- South African Chapter – to support them engaging with student members in other parts of Africa through existing academic links, providing a hub for future expansion.

The Local Chapter Outreach Committee is working on the exact details of both of these proposals with the respective chapters.

We look forward to receiving the next set of submissions in May.

Spotlight ON!

Interviewed by Sandy Young, info@incose.org



David Walden, ESEP

Name: David Walden, ESEP

Title: Owner and Principal Consultant

Organization: Sysnovation

Place of Birth: Minneapolis, Minnesota, USA

Current Residence: Shakopee, Minnesota (October through May) and Pentwater, Michigan (June through September), USA

Domain: Consulting and training in all domains

Studied in college:

Undergraduate: Electrical Engineering,

Graduate: Electrical Engineering, Computer Science and Management of Technology (MOT)

Year joined INCOSE: 1994