E-Newsletter

May 2016 Back Issues

President's POV - May 2016



Ellie Gianni President, ESEP

Welcome Spring! As we start a fresh new season, our chapter is reinvigorated and ready to take on new challenges. We completed our annual financial audit and briefed our membership on the successful outcome at our April 20th dinner meeting. Every year we learn how we can operate more efficiently by documenting strengths and weakness of our business practices as well as capturing best practices and lessons learned going forward. I would like to thank the Audit Team that I appointed in January who worked with me to

complete this task. The team includes:

- John Boccio, ESEP, Associate Director Government/Corporate Relations,
 Audit Committee Lead
- Mike Pafford, President Elect, Audit Committee Member
- Craig Tyler, ESEP, Secretary, Audit Committee Member
- David Alldredge, ESEP, Audit Committee Member

The Audit Team identified 15 Observations: 5 High Risk; 5 Medium Risk; and 5 Low Risk areas. Within the 15 Observed Areas the following results were noted prior to the Audit being finalized: 5 High Risk Observation Areas Closed/Resolved; 2 Moderate Risk Observation Areas Closed/Resolved and 3 Resolutions In Progress; and 5 Low Risk Observation Areas Closed. An excellent job by all involved.

We welcome our new Interim Treasurer, Tony Gigioli, PMP, to the Board of Directors team. Tony is a Past President of the Chesapeake Chapter and is the current Chair of the INCOSE Chapter Awards Program. He is a Lead Engineer for Booz Allen Hamilton Defense and Intelligence Group and is also a member of the Adjunct Faculty at the University of Maryland University College. He has a wealth of knowledge and experience to contribute to our chapter and we are very grateful to have him back on our Board of Directors. Welcome Tony!

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This is the monthly newsletter for INCOSE
Chesapeake, a local chapter of INCOSE International. We are a not-for-profit organization dedicated to providing a forum for professionals practicing the art and science of Systems Engineering in the Northern & Central Maryland & Southern Pennsylvania area.

Join INCOSE Today

http://www.incose.org/about /Membership/Join

The Chesapeake Chapter is always looking for volunteers to speak at our upcoming meetings! Please contact our Programs Director at programs@incose-cc.org if you would like the

In June, the Chesapeake Chapter will be hosting a 5-day training event to prepare anyone interested in obtaining their Systems Engineering Professional (SEP) certification. The course will be provided by CTI at the Johns Hopkins University Applied Physics Lab from June 13 through 17 from 8 AM to 5 PM in the Montpelier 6 Building in Room N111. Registration is currently open for this course and the Tuition is \$2868 for the week. This includes all course materials, practice exams, breakfast and lunch daily. *I want to encourage all of our members, if you do not already possess SEP certification, to participate in this training and to obtain your SEP certification.* If we do not have a minimum of 10 participants for this course, it will be cancelled.

Register at: http://www.certificationtraining-int.com/event-registration/?ee=155

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EFF exam with CTI
Its CSEP preparation
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CERTIFICATION
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a exam.

Certification is a value to you as a Systems Engineer. It formally recognizes your Systems Engineering capabilities and is a discriminator that can aid in maintaining your current employment or obtaining your next job. Certification can provide a competitive advantage in your career as well and is recognized across the industry. Obtaining your certification demonstrates your dedication to the profession and contributes to

your own professional development as a Systems Engineer.

Certification is also of value to your employer. It formally recognizes your Systems Engineering capabilities. Certified Systems Engineers can be a selling point and a discriminator for your employer's proposals. It can be used as part of the hiring and promotion process as well. The INCOSE SEP certification program encourages employee participation in continuing education. Finally, the SEP program provides for an independent internal and external assessment of an individual's skill set and can be used as a tool for promoting professional competence.

Please consider supporting our chapter and increasing your professional value by attending this training and obtaining your certification this year. Register here.

Speed Mentoring Event at Loyola University Maryland

This past month I supported a local Speed Mentoring Event on behalf of the INCOSE Chesapeake Chapter. The Speed Mentoring Event was held at the Loyola University Maryland campus and sponsored jointly by the



Society of Women Engineers (SWE) and the Institute for Electronics and Electrical

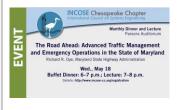
opportunity to speak or can recommend someone.











Engineers (IEEE) Women in Engineering (WIE) on April 20th. More than 15 engineering students, from sophomores to seniors, attended; along with a dozen mentors. Speed mentoring is a series of short, focused conversations about specific questions. Students met with a limited number of mentees in 10-minute time slots each. When directed, mentees proceeded to their mentor's table. At the start and end of each Speed Mentoring round, a bell rang. Speed Mentoring is a modified form of speed dating with a mentoring twist. The students asked a lot of questions about systems engineering. At the end of the evening my voice was completely gone, but not my admiration for these eager, inquisitive and talented students. The event was a huge success.

INCOSE

The Chesapeake Chapter of INCOSE is proud to recognize the following organizations for sponsoring our endeavors to expanding the understanding and appreciation of Systems Engineering in the local area:

INCOSE Chesapeake Chapter Programs Update

Your SEP Certification Will Expire Unless You Act

The years pass and you forget the details of your SEP certification and your responsibilities to keep it current. Many of you have earned the SEP certification in



Gundars Osvalds
Programs
Director, ESEP

Sur Lan Owlde

the last three years and now it's time for you to find out what you need to do to keep your certification. This article provides information you can use to make sure you keep your certification current.

ASEP — requires that you earn 120 Professional Development Units (PDU) every five years and must maintain INCOSE membership and transition to CSEP within 15 years. INCOSE Membership dues are required to be paid each year.

CSEP — requires you earn 120 Professional Development Units (PDU) every three years. Individuals who earned their CSEP certification before January 1, 2016 are not required to be INCOSE members in order to keep their certification, but must earn PDUs to keep their certification active. To maintain their certification, CSEPs obtaining the certificate starting in 2016 will be required to earn PDUs and keep their INCOSE Membership by paying dues to INCOSE.

ESEP — requires you maintain INCOSE membership by paying yearly INCOSE membership dues.

From "SEP Logo Guidance" Every individual who has earned and kept current (as defined above) an INCOSE SEP credential is entitled to use the appropriate designation immediately after their name on correspondence, Emails, business cards, resumes/CVs, papers/articles, presentations, and other similar items. Once a credential has expired, for any reason, the individual is no longer authorized to use the designation.



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According to the Current SEP records from the INCOSE site, the certifications for 3 Chesapeake chapter ASEPs and 24 CSEPs will expire in calendar year 2016. You can find out the expiration date for your ASEP or CSEP by reviewing the active SEP list on the INCOSE Certification web site. The INCOSE support personnel can provide information on how to restore your membership by paying dues to INCOSE and how to select the Chesapeake Chapter as your chapter. The Chesapeake Chapter receives part of the dues to support Chapter activities.

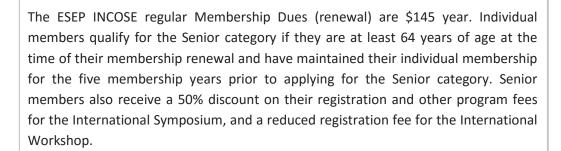


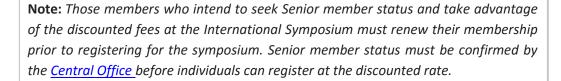
INCOSE Membership Dues

Go to <u>INCOSE Membership Types</u> to obtain New or Renew Membership and then to <u>Join INCOSE</u>.

The ASEP renewal fee is \$100 every five years. Annual membership dues are \$38 for Student and \$145 for Regular Individual Members.

The CSEP renewal fee is \$100 every three years if you are an INCOSE member, \$150 if not a current member. Note that any member certified as a CSEP (after January 1, 2016) must keep their membership active by paying yearly dues of \$145.





SEP Renewal Submission Information. If you are one of the SEPs who are close to the renewal date you need to complete the "Application for Renewal of SE Certification Form 6" form. You also are required to document the Professional Development Units (PDU) in the "Log of Continuing Education Credits Form 13",









which you can download from INCOSE web site.

Quickly Earn PDUs by Supporting the Chapter. You can quickly earn PDUs by volunteering for a leadership role or any support role in a professional technical society at local, national or international level for a credit of one PDU/hour of effort, with no limit.



You can earn credit for your ASEP and CSEP recertification by earning PDUs when volunteering to help the <u>Chapter Board of Directors</u> with your services. Please review the presentation "<u>INCOSE SEP Certification Overview</u>" pages 45 and 46; which contains a list of activities that count towards earning Professional Development Units.



Please contact any of the Chesapeake Chapter Board members listed on our <u>Chapter WEB Site</u> to discuss how you can help the Chapter and help yourself with your certification continuation. The instructions and forms for renewal are located on <u>Certification Form</u> page on the INCOSE web site.



Standards Corner – INCOSE Chesapeake Chapter Monthly Standards and Specifications News!

Specifications and Standards for the Internet of Things (IoT) Interoperability



Mike Pafford, President-Elect

This month's Standards Corner addresses the so-called 'Standards War' ongoing between technology groups seeking to influence the technical standards and protocols that apply to Internet of Things (IoT) development, communication, and interoperability.

Two key concepts are at play here; IoT, and Interoperability as it applies to IoT. The term Internet of Things (IoT) refers mainly to the primary enabler of connected devices, the 'Internet'. As is the case with many modern technologies, the term IoT no longer fully describes all of the networking protocols associated

with these connected devices. And, as the number and types of objects with the ability to communicate continues to proliferate, the term 'Things' is also becoming more vague.

One accepted generalization of the second key concept, Interoperability, is the feature for providing seamless exchange of information in a way that other systems can use it for improving performance, enabling and creating services, controlling operations, and information processing. From the 3rd Generation Partnership Project (3GPP), Interoperability is defined as, "...the ability of two or more systems or



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components to exchange data and use information".

It's generally agreed that Standards, including those that specify communications for IoT systems and components, are important to the interoperability aspects of the IoT. In February 2016, the Open Connectivity Foundation (OCF) was announced as a new Standards effort for the IoT. Members of the OCF include Cisco, Microsoft, and Samsung. One of the stated objectives of the OCF is to merge current efforts towards IoT interoperability standards development.



More information about Standards and Specifications being considered for IoT Interoperability can be found at:

- http://www.internet-of-thingsresearch.eu/pdf/IERC_Position_Paper_IoT_Semantic_Interoperability_Final.p
 df
- http://openconnectivity.org/
- http://www.3gpp.org/specifications-groups/specifications-groups



Events and Announcements

May 2016 Upcoming Dinner and Lecture

Scheduled Chapter meetings and Monthly Dinner Lectures take place at the Johns Hopkins University Applied Physics Lab (JHU/APL) in the Building 1 Cafeteria and Parsons Auditorium. Monthly membership meetings are held the third Wednesday of each month excluding December. Start time @ 6 pm for Dinner (\$20 in advance / \$25 at door) Meeting & 7 pm for Lecture (Free).

May 18 – 6 pm Dinner Meeting & 7 pm Lecture by Mr. Rick Dye, Administrator for the State of Maryland Coordinated Highways Action Response Team (CHART) "The Road Ahead - Advanced Traffic Management and Emergency Operations in the State of Maryland". (1 PDU). Register at: http://www.incose-cc.org



PROTEUS TECHNOLOGIES... Outsmart

Other Upcoming Events

- May 11 through 13 DoDAF 2.0 Modeling with IBM Rational System Architect
 V.11.4 Course by AVNET Academy. \$1800 (24 PDUs). Register at: https://academy.avnet.com/us/register/TR-296541#/participants
- Saturday May 14 The Systems Engineering Puzzle Workshop. \$20 (3 PDUs) by Karl Geist. Register at: http://www.incose-cc.org
- Saturday May 21 OOSEM Working Group Meeting live in JHU/APL Kossiakoff Center, Classroom K-8 at 9:30am-12:30pm EST. Also online via INCOSE WebEx Meeting at https://incose.webex.com/join/webex18; Meeting Number: 252 846 155. Join by Phone: 1-866-398-2885 Toll-free; Audio Passcode: 412 867 1535.



FREE (3 PDUs)

- June 13 17 CSEP Test Preparation Training at JHU APL, Montpelier Office Park, Building MP6 Room N111. \$2868 per student. Register at: http://www.certificationtraining-int.com/event-registration/?ee=155
- June 15 6 pm Dinner Meeting & 7 pm Lecture on Agile Robotics for Industrial Automation, Mr. William Harrison and Dr. Craig Schlenoff, National Institute of Standards and Technology (NIST). Agility Performance of Robotic Systems.
- July 27 6 pm Dinner Meeting & 7 pm Lecture. Dr. David F. Rico, PMI, CSEP.
 "Business Value of Agile Organizations; Strategies, Models, & Principles for
 Enterprise-level Agility". New Location this month ONLY! JHU/APL Building 200,
 Cafeteria & E100 Auditorium. (1 PDU).
- August 17 6 pm Dinner Meeting & 7 pm Lecture. Thomas Heffner, Design Strategist and Dennis Smith, Innovation Projects Specialist. "Design Thinking 101: What is Design Thinking and How Can it Help Your Organization Create a Culture of Innovation". (1 PDU).
- Saturday August 20 "Design Thinking Learn the tools and methods of Design Thinking that will turn your organization into an Innovation powerhouse": Tom Heffner & Dennis Smith. 8 am Continental Breakfast, Tutorial 9 am-12 pm, Lunch 12-1 pm, Tutorial 1-3 pm.
- Saturday September 10 9 am 12 pm, "Beyond Thinking Outside the Box, For Entrepreneurs and Systems Engineers", Dr. Howard Eisner, Cost \$100.
- Tuesday and Wednesday October 18 19, James Martin, "Systems Thinking Workshop" 8 am – 4:30 pm, JHU/APL at MP6, 7651 Montpelier Road, Room N111, Laurel, MD 20723.
- Wednesday October 19 6 pm Dinner Meeting & 7 pm Lecture, James Martin, "New ISO 42020 Standard for Architecture Processes". [The next draft of this Standard will be out in September for comments that are due at the end of October. Please contact Ellie Gianni if interested in reviewing the draft and providing feedback].

Scheduled Chapter Special Events (Engineers Club, Garrett Jacobs Mansion Baltimore, MD)

August 24th – 7th Annual Systems Engineering Professionals (SEP) Gala. Guest Speakers Courtney Wright, INCOSE Program Manager for Certification and Ms Kristen Baldwin, Acting DASD SE. Corporate sponsors are needed.

Please contact Gundars Osvalds, Programs Director (<u>programs@incose-cc.org</u>), if your company is interested in sponsoring this event.

December 7th – Chesapeake Chapter Holiday Party and Awards Ceremony.







This Newsletter is to serve our members and is open to all for contributions. Do you have an interesting idea for an article? A review of a new book related to engineering?

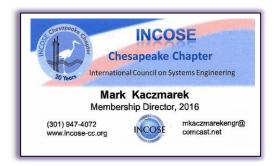
Let us know. We'd love to hear about it. It may wind up in a future issue of our Newsletter.

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Chapter Business Cards

Please contact Mark Kaczmarek at the <u>email address</u> provided on the card to obtain your own Chesapeake Chapter business cards. Free to Chesapeake Chapter members.







Membership Arena

Mark Kaczmarek, Membership Director

The Chesapeake Chapter proudly welcomes our new members

April 2016

- Joseph Dougherty, Northrop Grumman
- Holly Jeffrey, Northrop Grumman
- Irving Pollard, SPAWAR
- Kristen Handy, Booz Allen Hamilton
- Alex Duda, Northrop Grumman

March 2016

- Christopher Couch, Northrop Grumman
- Eric Hiltpold, Jovian Concepts

February 2016

John Shelton, JHU/APL

January 2016

- Grace Crowder, DOD
- Lauren Chance, Embry Riddle Aeronautical University
- Richard Day, JHU
- Linnea Wright, BAH
- Asia Morgan

December 2015

- Frank Smith, Northrop Grumman Corporation
- Annette Mirantes, JHU/APL
- Andrew Risko, JHU/APL









November 2015

- Joe Williams, Johnson Control
- Lawrence Clairmont, KEYW
- Christie Best, Craig Technologies
- Andrew Kalberer, Boeing Company
- Rachel Laskin, Northrop Grumman Corporation
- James Crockett, Northrop Grumman Corporation

September 2015

Fidel Sanchez, JHU/APL

Systems Engineering and Process Improvement in the Roman Empire By George Anderson, ESEP

The leadership in the Roman Empire was generally known to have paid a lot of attention to efficiency and good governance. Almost everything we know about this is documented in surviving details from contemporary writings and corroborated by archaeological examinations of sites and period artifacts.

At various times in history subsequent to the end of the Roman era, historians have admired the wisdom that was revealed in these writings and some have tried to apply it to their own contemporary problems. It is somewhat uncanny how each generation including those currently alive become energized by discovering parallels from the past and our present circumstances. Some have glibly dismissed this as just the satisfaction of knowing "how the movie ended" but it is far more, as we shall see.

One such surviving document was the work of a Roman citizen named Flavius Vegetius Renatus. He lived between 300 and 400AD and wrote what today could be considered a process improvement proposal for the Emperor Valentinian. At some point after 378AD, Valentinian was just a little bit concerned with military readiness levels. His Legions had been deteriorating in various evaluations and he suspected that he needed to consider some type of reorganization and process reengineering.

Vegetius would have done well working for Booz Allen Hamilton in 2016 AD because it appears that he thoroughly understood how to approach the Emperor's consulting problem and use documented data to substantiate his recommendations. While there is some evidence that Vegetius' work may have become Roman shelf-ware shortly after its delivery, the wisdom revealed in it bears a brief examination as it appears frequently in European writings dating from the 10th century onwards.

The Roman Army then consisted of numbered legions each consisting of approximately 8000 men. While the number of legions varied based on the need, a legion was the basic unit of deployment. Legions were self-contained with their own life cycle support. They were capable of deploying and operating independently for years. The stories of earlier Roman military exploits such as those of Caesar's X (10th) legion in Gaul have fascinated generations of American college students until military history disappeared from college curriculums in the early 1990s. Now, one







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Let us know. We'd love to hear about it. It may wind up in a future issue of our Newsletter.



The Chesapeake Chapter of INCOSE is proud to recognize the following partner organizations and upcoming conferences that may be of interest to our membership.

has to download that military history from the free book section on a Kindle.









Vegetius decomposed the problem down into three areas: Training, Organization, and Deployment strategy. His intent was to describe an acceptable baseline of performance that could be validated and vouched for by other experts. There was only one source for his data since he had no personal military record. This source was almost certainly the body of knowledge created by earlier Roman writers who had written of past victories and the details of military science as it was practiced.

Today, we might imagine these were the forerunners of today's journalists along with a few philosophers and a very few scientists or natural philosophers.

Vegetius was a focused researcher with modern qualities in that he described processes and the desired outcomes. He had the normal politically correct overlay of his day and would be very savvy if he could see some of today's technical reports that insert mantra-like paragraphs on green power, sustainable growth or empowering the work force. He would also find Scott Adams' DILBERT relevant but not reportable to Valentinian.

A summary in modern terms of his basic message to the Emperor was: "If you return to practices followed by the earlier Emperors in the way you train, organize and equip your legions, you will have a superior military force. You will also have to work on the leadership thing and make sure you have Roman citizens running the show. Those Gauls are good soldiers but many of them are still sending money back to their families across the Danube every month and we need to worry about their loyalties."

Vegetius, Part I. Training the Legion. The Roman Army training process consisted of just 15 areas of performance. This was further divided into what we today would term:

- Human resources and recruiting
- Basic Training
- Continuation Training

It is interesting to note that the Roman soldiers training and currency records included very few items but ones that clearly resonate across the centuries.

Small unit Drill

What people are saying about Chesapeake Chapter in 2015:

"... What a wonderful, innovative, and impactful year for the Chesapeake Chapter. I hope you, your board, and the entire chapter is proud of what you have accomplished..."

Past President, INCOSE

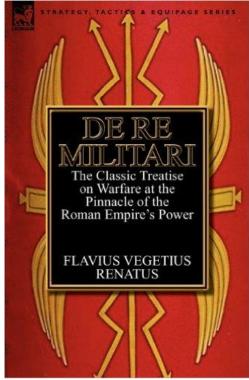




- Sword practice
- Bow Sling and Javelin
- Vaulting and proper ways to lift heavy loads
- Entrenching Camps
- Marches

Vegetius, Part II. Legion Organization.

This section covers the organization chart, the job descriptions and duties of each member of a Roman Legion. operation of an 8000-man organization was very dependent on strict adherence to clearly promulgated and carefully followed processes. While this concept resonates with todav's process improvement experts, the means that were used to achieve it are not as Flogging as a disciplinary welcome. measure faded somewhere in the early 19th Century and the jury is still out on



what modern incentive should take its place. Discipline, regardless of its distasteful history in the Roman Army, overwhelmingly accounted for success on the battlefield and Vegetius repeatedly drove this point home. We cannot escape facing up to and mastering this challenge today in every complex organizational system we create or reengineer.

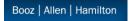
Vegetius, Part III. Deploying the Legion. This section is the largest of Vegetius' work. There was a lot of what the Romans would probably call technical issues involved in deploying a Legion for combat. Leadership had to be concerned with all the timeless factors. These included: health, logistics, terrain, weather, order of battle, intelligence, mutiny, and so on. What was not a timeless factor was a discussion of fighting with or against chariots and elephants. Not useful for us today, but hard to resist a quick look.

Strategy and tactics would have been classified secrets and perhaps only provided to those with a need to know. The combination of good strategy, repeatable and executable tactical maneuvers and strong discipline created the baseline for Vegetius' key recommendations on deployment.

It is really interesting to speculate about what Vegetius might have left out of his study. Were there other items that he should have addressed? If he had possessed a modern process improvement framework, would it have helped him to be more complete? Was research and development a cost item in the Emperor's annual defense budgets? Were joint operations (navy and army) a bridge too far? What were the positive supporting elements of Roman culture, law and societal customs?

And finally, why were the Romans able to maintain their superiority for such a long time even though their enemies in many cases represented cultured and highly developed states?















These are questions that will not be answered here but will undoubtedly be addressed in the future if the interest in Vegetius continues its 16 plus century run.

I have done my part to remind you of his significance to the (military) history of process improvement and I will provide links for those systems engineers that want to learn more about chariots and elephants.



Further reading:

http://en.wikipedia.org/wiki/Publius Flavius Vegetius Renatus

http://penelope.uchicago.edu/~grout/encyclopaedia romana/gladiators/vegetius.html

http://www.livius.org/caa-can/caesar/legions.html

http://books.google.com/books?id=aPK7xjchZFUC&printsec=frontcover&dq=vegetius&source=bl&ots=mUPkcBstw1&sig=4M2sMN3ElohPYuatsyLKY9Xba1Q&hl=en&ei=E9JMTL-

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Interested in Jobs & Networking?

Contact Mark Kaczmarek at mkaczmarekengr@comcast.net

Or attend one of the Tech Expo Events in our area:

https://www.techexpousa.com/







May	12	BWI Marriott, Baltimore, MD	TECH EXPO TOP SECRET
May	19	Ritz-Carlton Tysons Corner, VA	TECH EXPO TOP SECRET
June	15	BWI Marriott, Baltimore, MD	TECH EXPO TOP SECRET
June	30	Ritz-Carlton Tysons Corner, VA	TECH EXPO TOP SECRET







Keep up with the latest news and events. Find out about our new Board of Directors. Explore our extensive library of previous lectures from our Monthly Dinner Meetings. Learn of the Benefits of Joining INCOSE. Check out Systems Engineering education in the local area. All this and more awaits you at our INCOSE Chesapeake Chapter Website.

For any comments or suggestions about this newsletter please e-mail our <u>President, Ellie Gianni</u> or our <u>Communications Director, Pat Williams</u>. We value your feedback.

Board of Director Officers, 2016

- President: Mrs. EleanoraAnn "Ellie" Gianni, ESEP
 - Past President: Mr. George Anderson, ESEP
 - President Elect: Mr. Michael Pafford
 - Treasurer: Mr. Tony Gigioli

- Secretary: Mr. Craig Tyler, ESEP
- Communications: Mr. Pat Williams, CSEP
- Programs: Mr. Gundars Osvalds, ESEP
- Membership Committee: Mr. Mark Kaczmarek

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