

INCOSE Midwest Gateway Chapter 2019-Q3 Newsletter



Inside This Issue

Presidents Message

In the News - MGC Q3 Highlights

- 2019 INCOSE International Symposium
- SLU Workforce Center Python Courses
- GLRC Conference
- Membership Committee Updates

New Member Spotlight - Sofia Chkautovich, The Boeing Company

INCOSE Midwest Gateway Chapter Sponsors Free INCOSE Written Knowledge Exam

MGC Virtual Certification Workshop

Request Volunteers MGC BOD for Chapter Elections in Fall 2019

Agile in Systems Engineering: Of Hornets and Hippos by Matt Ingram

Guest Column – What’s the Future of Systems Engineering?

MGC Speakers Event Abstract

SE Resource Links & Upcoming Events

<https://www.incose.org/midwest-gateway/>

2019 MGC Board of Directors

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President's Message

Planning ahead is an integral part of systems engineering. That's really where we earn our paycheck. It's the same in your local INCOSE chapter. We're not quite to the end of 2019 yet, but it's time to spec out 2020 and start designing what we want to do—before it gets here. Before we get into the newsletter, I'd like to ask your help with three things to help us with our trajectory into 2020. (1) Don't forget to renew your membership. (And bring a friend.) (2) Nominations for INCOSE-MGC board elections are now open. More information is posted later in the newsletter. It's a manageable amount of work to run the chapter, and you get an opportunity to think about systems engineering in a different way as you develop programs and information for the membership. (3) Our chapter's best programs start as suggestions from our members. Now is the time to start setting up programs for the first half of 2020. What would you like to learn? How would you like to grow? Who would you like to see in St. Louis? Get in touch and I'll pass it on to the next president and we'll make it happen. I already have my own list—let's see yours.

Enough planning—let's do. Enjoy the newsletter. Big thanks to Rob Simons for putting it together.

—Kirk Kittell, 2019 INCOSE-MGC President

kirk.kittell@incose-mgc.org

INCOSE IS19 Conference

INCOSE recently held its annual International Symposium (IS) in Orlando, FL. IS19 was a 6-day event focused on this year's IS theme:

System Applications for Global Challenges.

The annual INCOSE symposiums are the largest gatherings for Systems Engineers drawing attendees from domestic and foreign academia, government, research, industry and small business firms. As INCOSE describes it, "The benefits of attending the Symposium include the opportunity to share ideas, network, build competency, pursue certification, contribute to the advancement of the profession through collaboration on tools, processes and methodologies, learn about new offerings in training and education, and forge new partnerships."



29th Annual **INCOSE**
international symposium

Orlando, FL, USA
July 20 - 25, 2019



INCOSE Symposium Venue – Hyatt Regency Grand Cypress Gardens, Orlando FL

INCOSE has focused on growing the visibility of the profession and engaging with early career systems engineers. This year's symposium was well attended by many young, early-career systems engineers as well as mid-to-late career technical professionals transitioning to systems engineering roles in their organizations. The symposium emphasized communications and collaboration by offering networking events (Ice Breaker, Women's Networking Event, New Member Luncheon, INCOSE Island Night, and a formal Networking Reception) and organizing the daily coffee and lunch breaks to further encourage networking among INCOSE leaders, symposium speakers, panelists and fellow attendees. The venue location also encouraged many attendees to bring their families to take advantage of the many entertainment and shopping opportunities close by.

Four keynote speakers shared insights on the systems engineering issues through their kickoff presentations. The topics were 'Systems Engineering inspired by Leonardo da Vinci', 'Biomimicry and a Bio-inspired approach to Systems Thinking', 'The Future of Spaceflight', and 'Unmanned Systems and Robotics'. The Biomimicry discussion was especially intriguing in that the keynote speaker, Prashant Dhawan from Biomimicry India, suggested that Nature be used as a framework for solving difficult technical issues. His talk suggested that a bio-inspired approach is an opportunity for SE problem-solving, and further stated that humanity should evaluate Nature's solutions as they have been time-tested over 3.8 Billion years to address complex system problems.

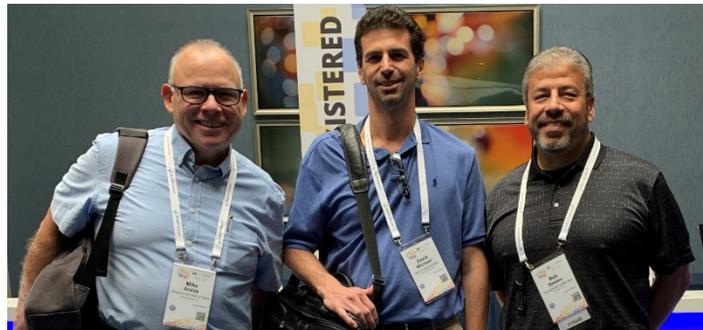
INCOSE also released new terminology clarifications along with a newly revised systems engineering requirements reference. Terminology updates include:

- Systems Engineering Definition: "*Systems Engineering is a 'transdisciplinary' and integrative approach to enable the successful realization, use and retirement of engineered systems, using systems principles and concepts, and scientific, technological and management methods.*"
- System Definition: "*A system is an arrangement of parts or elements that together exhibit behavior or meaning that the individual constituents do not.*"
- Engineered Systems Definition: "*An engineered system is a system designed or adapted to interact with an anticipated operational environment to achieve one or more intended purposes while complying with applicable constraints.*"

The newly released reference 'Guide to Requirements' document is now available by logging in to the INCOSE Members portal @ <https://www.incose.org>.



MGC member Rob Simons (Boeing) and Keynote Speaker Capt. Winston Scott (former USN and NASA Space Shuttle Astronaut)



MGC Attendees: Mike Araiza (DRS), David Wechsler (DRS), Rob Simons (Boeing)

Interested in asking further questions about IS19? Follow up with the following MGC members who attended:

Mike Araiza
Leonardo DRS Land Systems
araizahead@gmail.com

Cihan Dagli
Missouri Univ. of Science & Technology
dagli@mst.edu

Dan Delaurentis
Purdue University
ddelaure@purdue.edu

Greg Parnell
University of Arkansas
gparnell@uark.edu

Bev Schieferdecker
The Boeing Company
beverly.j.schieferdecker@boeing.com

Rob Simons
The Boeing Company
robert.l.simons@boeing.com

Dave Wechsler
Leonardo DRS Land Systems
dwechsler@gmail.com

SLU Workforce Center Offers Python Course



During our MGC Speaker Event in March we welcomed the Saint Louis University (SLU) Workforce Center. They shared with us their career and professional development curriculum which includes the Python Programming Certificate. Python is a widely used programming language that is flexible, easily readable and lends itself to many systems engineering work tasks, such as data analysis and manipulation, prototyping and task automation. Noting that a key prerequisite for the Python Certificate is previous programming experience, an MGC attendee asked how a non-programmer could successfully complete the Python certificate.

As a direct result, the SLU Workforce center created the Introduction to Python Programming for Non-Programmers course. The new course is delivered in six evenings from 5:30-8:30PM on campus at SLU and as a virtual class delivered over the web. The first course ran successfully in early September. The next course offering is scheduled for Oct 15 thru October 31, Tuesday and Thursday evenings from 5:30PM to 8:30PM. The course can be taken independently, but it serves as a gateway course to enter and successfully complete the full Python Certificate curriculum.

The course description reads: *'Python is a dynamic, strongly typed, object-oriented, multipurpose scripting language for the web. And if you are not sure exactly what that means that is fine, because this hands-on course is an introductory Python programming course designed to provide strong programming basics and Python foundations for the non-programmer. In this course students starts with an overview of Python and the basics of the language building upon concepts until students are creating simple applications. Topics include Python language basics, the IDLE environment, control flow constructs, functions and modules and*

how to test and debug a program. File consumption and exception handling are also addressed as well as how to work with different data types.'

Why Python? For systems engineers without a programming background, this is an excellent opportunity to obtain software programming skills that are applicable to the systems engineering workplace. Python is a language that is easy to learn and apply, and it can be used as a steppingstone into other programming languages and frameworks.

MGC Members can attend either on-campus or using virtual technologies from your workplace or home. Either way you will access a virtual machine (VM) in the cloud using a browser-based interface that provides audio, video and the virtual windows environment for all python class exercises. Python certification demonstrates evidence of a skillset that strengthens the recipient's contributinal value to their organization as well as providing a career and professional development highlight that can open new opportunities for advancement and growth.

The following link provides additional Python course information:

<https://workforcecenter.slu.edu/search/publicCourseSearchDetails.do?method=load&courseId=112426>

INCOSE Great Lakes Regional Conference (GLRC)

From October 22 to 25, the INCOSE Cleveland-Northern Ohio Chapter is organizing a regional conference, the 13th edition of the INCOSE Great Lakes Regional Conference (GLRC): <https://www.incose.org/GLRC13>.

A regional conference is an excellent way to meet other systems engineers in the Midwest, to learn how systems engineers go about their job in other areas and in other industries. There are many systems engineers in the defense and medical devices industry here in St. Louis, but attending the GLRC will introduce you to systems engineers working in the space industry, in the automotive industry, in IT, and so on. This is important if you want to learn techniques and experiences for your current job, but it also gives you a leg up if you're looking to move into something new.

Besides: 2019 is the 50th anniversary of the Apollo moon landing, and Harrison Schmitt, who landed on the moon in 1972, will be speaking at the conference.

If you have any questions about the conference, please get in touch with conference organizer Joel Knapp, joel.j.knapp@nasa.gov.

Membership Committee Updates

We are pleased to announce the following new and returning members in 2019. What makes our chapter great are the experiences and diversity of our membership. Current members, please be sure to introduce yourself to them at our next Midwest Gateway Chapter event!

– John Thompson, Membership Director

New MGC Members

- Chkautovich, Sofia The Boeing Company
- Lyerla-Figueroa, Cleavie National Security Agency Enterprise Systems
- Miller, Joshua The Boeing Company
- Reid S Allison
- Welty, Christopher Systems Planning and Analysis

MGC Membership Renewals

- Austin, Edward Northrop Grumman Corporation
- Dagli, Cihan Missouri University of Science & Technology
- Halley, Ian The Boeing Company
- Haskins, Andrew Embry Riddle Aeronautical University*
- Kroll, Tim The Boeing Company
- Mobley, Michael The Boeing Company
- Pitz, Randy The Boeing Company
- Rhodes, Matthew Whirlpool Corporation
- Scheurer, Robert The Boeing Company
- Sharma, Amit Caterpillar Inc.
- Thorne, Christopher Irvin Technologies, Inc.

Note: * denotes student

New Member Spotlight – Welcome Sofia Chkautovich, Systems Engineer, The Boeing Company

Background

I was born and raised in St. Louis and attended SIU Edwardsville for a Bachelor's in Civil Engineering, graduating in 2016. I'm currently enrolled in Purdue's distance SE Master's program.



Current Role

I am a Systems Engineer for Engineering Support & Sustainment at Boeing in St. Louis.

What you like about Systems Engineering

I am early in my SE career, so I still have a lot to learn and master. I like how a system can be an individual piece of equipment, but it can simultaneously be different components that make up that equipment.

Why you joined INCOSE

I attended a couple of networking and happy hour events and enjoyed my time and the conversations I had with other SEs. It made my decision to pursue my Master's and continue to grow in my position. I joined INCOSE because it's a great resource to learn/discuss/network with other professionals in the field.

Goals

So far, so good! I greatly enjoy the networking events I have attended and am looking forward to many more!

MGC Virtual Certification Workshop

Midwest Gateway chapter (MGC) of INCOSE is offering a Systems Engineering Professional review workshop in preparation for a written knowledge exam. The Certification workshop has started and is comprised of fifteen (15) one-hour, weekly Webex reviews of the John Clark Tutorial material and INCOSE SE Handbook v4.0. Each Webex review is led by an INCOSE-certified SE.

It is not too late! MGC-sponsored Certification Preparation workshops are occurring on Thursday evenings from 4:30PM – 5:30PM Central time thru 5 December 2019, except 14 and 28 November 2019. While the workshop will not teach Systems Engineering it highlights INCOSE Systems Engineering Handbook and differences amongst other implementations of Systems Engineering (e.g. DoD, NASA). If you have questions regarding the free written knowledge exam or free Certification Preparation Knowledge Exam, please send email to louis.e.pape-ii@boeing.com and john.p.thompson3@boeing.com.

MGC Sponsors Free INCOSE Systems Engineering Professional Written Knowledge Exam

INCOSE Midwest Gateway Chapter invites members to take the INCOSE written knowledge exam and get one step closer to INCOSE Professional Certification at the ASEP or CSEP level. Part of the requirement for the Certified Systems Engineering Professional (CSEP) or Associate Systems Engineering Professional (ASEP) credential is passing the INCOSE knowledge exam.

Three certification levels are available through INCOSE:

- Associate Systems Engineering Professional (ASEP)—Applicants are required to successfully pass the INCOSE Knowledge Examination.
- Certified Systems Engineering Professional (CSEP)—requires a minimum of 5 years of documentable, practical SE experience, a technical degree (additional years of SE experience can be used in lieu of a technical degree), the submission of three professional references attesting to the candidate's cumulative years of experience, and successful completion of the INCOSE Knowledge Examination.

- Expert Systems Engineering Professional (ESEP)— requires a minimum of 25 years of practical SE experience, a minimum of 5 years of professional leadership credits, a technical degree (additional years of experience can be used in lieu of a technical degree), and three professional references covering at least the most recent 10 years of experience. The ESEP award is based on an INCOSE Central panel review and approval.

Registration is required to take the free written knowledge exam. Attending the free Certification Preparation workshop is recommended but not required. The written paper Knowledge Exam is scheduled for Friday, 13 December 2019. Registration and other details of the ‘free’ written Knowledge Exam is available here: <https://incose.ps.membersuite.com/events/ViewEvent.aspx?contextID=9725473f-0078-cc9c-6598-0b3fcd80fb70>. Please contact John Thompson at john.p.thompson3@boeing.com.

Request MGC BOD Volunteers for Chapter Elections in Fall 2019

Midwest Gateway Chapter (MGC) members are encouraged to volunteer their time, treasures and talents to improve opportunities for all. One way is to become a member of the MGC Board of Directors. While it is too late for candidates to appear in this newsletter, it is not too late to become a candidate for a member of the MGC Board of Directors.

Qualifications: Candidates must be an active member to be nominated and remain active membership during term of position. Candidates will need to provide a brief vision statement, their profile and photo to publish on chapter website. Elections are scheduled for November and announced in December 2019 so nominees need to have vision and profile completed so they can be communicated to membership. Commitments are typically two years (2020 and 2021). If you are interested or want to recommend someone, please email to john.p.thompson3@boeing.com by 18 October 2019. See below for an extract from the MGC ByLaws.

Attachment A – Extract Chapter ByLaws (Purpose, Objectives, Board of Directors and Officers)

ARTICLE II - PURPOSE

The purpose of the MIDWEST CHAPTER is to foster the definition, understanding, and practice of world class systems engineering in industry, academia, and government.

ARTICLE III - OBJECTIVES

The objectives of the MIDWEST CHAPTER are to provide a focal point for dissemination of systems engineering knowledge, and through its involvement with INCOSE:

1. Promote collaboration in systems engineering education and research;
2. Assure the establishment of professional standards for integrity in the practice of systems engineering;
3. Improve the professional status of all persons engaged in the practice of systems engineering;

4. Encourage governmental and industrial support for research and educational programs that will improve the systems engineering process and its practice; and
5. Promote CHAPTER activities with industry, government and academia within the geographic area of the CHAPTER.

ARTICLE V - BOARD OF DIRECTORS

SECTION 1.

The affairs of the MIDWEST CHAPTER shall be managed by five (5) officers and four

(4) Directors, hereinafter designated as the Board, under such rules as the Board may determine, subject to the specific conditions of this Constitution and Bylaws.

ARTICLE VI – OFFICERS

SECTION 1.

The President shall be responsible for the general supervision of MIDWEST CHAPTER affairs. The President shall preside at MIDWEST CHAPTER meetings and special chapter events, at meetings of the Board, and be the MIDWEST CHAPTER representative at INCOSE functions.

SECTION 2.

The Vice President/President-Elect shall assist the President and shall assume the duties of the President when the President is unable to perform these duties. The Vice President/President-Elect shall succeed to the position of the President upon completion of his/her term of office or if the President vacates the office.

SECTION 3.

The Treasurer shall be responsible for the financial affairs of the MIDWEST CHAPTER. The Treasurer shall receive all funds paid to the MIDWEST CHAPTER, shall pay of all bills incurred by the MIDWEST CHAPTER and approved by the Board and shall be responsible for investment of funds as authorized by the Board of Directors. The treasurer shall prepare and submit an annual chapter budget for approval by the Board of Directors. The Treasurer shall make an annual report on the financial affairs of the MIDWEST CHAPTER. The Treasurer shall provide financial reports to the INCOSE central office as required. For instances of the Treasurer being unable to fulfill stated duties, the President or Vice President/President-Elect may, upon notification of the board, serve as proxy for the Treasurer for collecting and dispersing funds. The Treasurer shall manage and report to the board chapter membership counts on a quarterly basis at a minimum.

SECTION 4.

The Secretary shall prepare minutes of all meetings of the MIDWEST CHAPTER and the Board and maintain all permanent records. The Secretary shall prepare, maintain, and publish the chapter

calendar. The Secretary shall provide communication between the Board, INCOSE, and the MIDWEST CHAPTER membership. During absences of the secretary, the President may temporarily assign secretarial duties to another member in good standing or proxy.

SECTION 5.

Terms of office shall be as shown below:

Vice President/President-Elect: 1 yr.

President: 1 yr. + Past President 1 yr.

Treasurer: 2 yr. (Staggered with Secretary)

Directors: 2 yrs. (Staggered two each year)

Agile in Systems Engineering Excerpt: Matt Ingram, CSEP Of Hornets and Hippos



F-16 Fighting Falcon

In the 1990s, the United States military decided to replace three of its aging fighter aircraft models. The F-16 Fighting Falcon was a conventional take-off and landing, single engine fighter jet for the air force. The F-18 Hornet was a fighter for the navy capable of taking off and landing from aircraft carriers. And the AV-8B Harrier was a marine aircraft capable of take-off from short runways and landing vertically, like a helicopter.

Military leaders opened a competition, eventually narrowed to Boeing and Lockheed Martin, to replace all three aircraft with a single family of one new fighter. The new plane, dubbed the Joint Strike Fighter, needed to include an air force configuration with conventional take-off and landing, but with a Mach-1 top speed and aerial refueling capability. The navy configuration required carrier take-off and landings. And the marine variant needed to take-off from a short runway with full fuel and weight, and also hover and land vertically at low fuel and weight.

Plus, all configurations were to have 80% of their parts in common with one another. The hope was that, with extensive parts commonality, the plane could be produced less expensively, by employing economies of scale.



F/A-18 Hornet



AV-8B Harrier

In October 2001, military leaders crowned Lockheed Martin's plane the winner. Several colleagues of mine who worked on the program are still convinced that Boeing made the better airplane. But perhaps an undocumented requirement contributed to Lockheed's success: the "cool factor."



Lockheed's JSF entry

Lockheed's plane looked more like a traditional fighter, which is to say, it looked like a bird of prey. Boeing's plane, with its unusual air intake below the cockpit, looked a bit like a hippopotamus.



Boeing's JSF entry

Virtually since the competition award in 2001, the JSF has flown into problems. Cost overruns, schedule delays, and quality issues have degraded the program's reputation. A New York Times Magazine article's headline declared it "America's dysfunctional trillion dollar program." But the same article described efforts to improve the program using agile software development. For acquiring software upgrades to the jet, the author states: *A trial program staffed with a team of Air Force and Lockheed coders proved that the (agile software development) method works.*

<https://www.nytimes.com/2019/08/21/magazine/f35-joint-strike-fighter-program.html>

<https://www.defensenews.com/smr/defense-news-conference/2017/09/06/f-35-program-office-floats-new-agile-acquisition-strategy/>

As JSF program leaders look to agile methods to improve engineering development, other systems engineering practitioners are taking notice. This article presents several examples of projects – systems engineering or otherwise – that have successfully implemented elements of agile software development in non-software domains.

[...] **Note:** For the complete article by Matt Ingram, please visit <http://incose-mgc.org/newsletter>. (Direct link to the file: "[Of Hornets and Hippos](#)")

Guest Column – What's the Future of Systems Engineering?

By: Bob Scheurer

Have you ever thought about where the world of systems engineering is headed? If you're a member of INCOSE, you see, read, and hear various perspectives on that topic. INCOSE even discusses their view in their Systems 2025 vision. Our current International President, Garry Roedler, firmly embraces the need to evolve Systems Engineering and INCOSE in order to stay relevant.

For our purposes, you only need to look around to see the continued growth in system complexities that appear in the various products, systems and services that we encounter daily. Now, we take for granted the ability to have products delivered within hours of ordering them and we see interactive media brought to

our homes and finger tips on a moment's notice. Products are being developed which have shorter life cycles and soon become functionally obsolete, almost before they have time to get into the field.

So, what does that mean for today's systems engineers? It means is that the cycle of development has been compressed tremendously over the past decade or so, leaving less time to implement the traditional systems engineering processes and tools which were developed when time moved more slowly. It means that as today's hardware and software rapidly become commodities, systems approaches, tools, and engineering must stay ahead of the value curve in producing the goods and services not yet conceived today but which will emerge in the future.

We as systems engineers must be intimately involved with helping to set the course and prepare for the problems that systems engineering can and must solve in the future. We need to keep up the best we can with the evolution (some might say revolution) occurring around us. We can do that by staying involved with INCOSE, growing our participation in our local chapter, better understanding the needs of our customers, and growing our own expertise. Because just as the products and services we see today rapidly advance, our systems engineering process and tools toolkit (e.g., system architecting, Agile approaches, Model-Based Systems Engineering, digital engineering implementations, mission engineering principles, etc.) must advance as well. For as Einstein said, "We can't solve problems by using the same kind of thinking we used when we created them."

Note: If you would like to submit a candidate guest column for consideration in future newsletters please contact Rob Simons (rob.simons@incose-mgc.org).

MGC Speakers Event Abstract

On Nov 21 the MGC will hold a Speakers Event in the Metro East. Bob Scheurer of The Boeing Company will speak about System Architecting. The following is an abstract of Bob's presentation and bio information.



Title: Continuing Madness: Methods Behind System Architecting Challenged

Abstract:

System architecting has been performed for multiple decades now, yet positive outcomes are still elusive in far too many cases. Observations and lessons learned in a paper written by the author 25 years ago are as relevant now as they were in 1994. Visions shared by leaders today have an appealing allure, just like those shared in times past: claims of greater system development accuracy, completeness, traceability to requirements, and over-all better development economics and customer satisfaction are among those being proclaimed again today. Resultant architectures still suffer from problems for developers and complaints from users and other stakeholders. Then as now, certain necessary ingredients to an architecting process are needed in order to achieve the often-elusive benefits. So, is there anything different today which can lead to better outputs and outcomes than many years ago?

This presentation will re-examine the architecting methods, tools, training, and other elements of an enabling environment that are used (or not used) today to see what may have really changed. Questions will be raised and answered as to what can be helping versus hurting attainment of architecting success and useful system architectures. It will also explore architecting frameworks today and their implementation to understand if they are meeting their intended purposes. Finally, observations as to what is needed to get to better, more useful architectures and architecture processes will be offered, including the integral need to employ a methodology to reduce or eliminate architecting madness.

Speaker Bio:

Bob Scheurer is an Associate Technical Fellow at the Boeing Company with 36 years of engineering experience in both defense and commercial industries. He is currently involved with defining, applying, and assessing Systems Engineering and integration practices across Boeing Defense, Space, and Security (BDS), including architecting and model-based systems engineering (MBSE).

SE Resource Links

Many thanks to our MGC Treasurer and INCOSE ESEP, Dr. Lou Pape, who has offered the following set of curated references (listed below) intended to inform and guide systems engineering practitioners. If you would like to share a resource or reference, please contact any MGC board member to have it included here in the Newsletter.

Resource Name/Description	Link
Defense Acquisition University (DAU)	https://www.dau.mil/
DAU DAG (Defense Acquisition Guide): SE Best Practices Guide	https://dag.dau.mil/Pages/Default.aspx
MITRE SE Guide	http://www.mitre.org/work/systems_engineering/guide/enterprise_engineering/
NASA SE Handbook 2017	https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20170001761.pdf
Lean for SE (Where lean comes from)	https://www.malotaux.eu/doc.php?id=79
One page architecture descriptions: A3 method	http://doc.utwente.nl/75284/
Overlap of PMP and SE (not perfect, but close to the truth); there is an INCOSE WG coordinating with PM	https://www.pmi.org/learning/library/systems-engineering-project-5857 https://doi.org/10.1002/j.2334-5837.2007.tb02973.x
Gentry Lee, Chief Systems Engineer of Jet Propulsion Lab; 2 one-hour videos: "When The Canvas Is Blank," and "Top 10 Behaviors Of A Systems Engineer"	http://space.se.spacegrant.org/index.php?page=videos Note: Highly recommended!

Resource Name/Description	Link
Wonderful, short, readable Intro to Systems Engineering! Also highly recommended!	http://dwaynephillips.net/systemsengineering/JustEnoughSystemsEngineering.pdf
Office of Deputy Assistant Secretary of Defense (ODASD) Systems Engineering System of Systems Engineering Collaborators Information Exchange (SoSECIE) (historical chart decks collected)	http://www.acq.osd.mil/se/outreach/sosecollab.html
FDA discusses benefits versus, and communicating risks (mostly medical devices, but applies to lots of areas)	https://www.fda.gov/media/98657/download https://www.fda.gov/media/81597/download
Admiral Rickover on Practical Engineering, and Engineering Management (e.g., Own your job like you'll be there forever!)	http://ecolo.org/documents/documents_in_english/Rickover.pdf https://en.wikiquote.org/wiki/Hyman_G._Rickover http://govleaders.org/rickover.htm
MIT Open Courseware Introduction to Systems Engineering (selected video lectures on U-tube) Prof Olivier de Weck	https://ocw.mit.edu/courses/aeronautics-and-astronautics/16-842-fundamentals-of-systems-engineering-fall-2015/ https://www.youtube.com/watch?v=CTVFDb44ses

Upcoming Events

- Oct 21-24 NDIA 22nd Annual Systems and Mission Engineering Conference, Tampa FL
- Oct 22-25: INCOSE Great Lakes Regional Conference, Cleveland - <https://www.incose.org/glrc13>
- Oct 24: INCOSE-MGC Social Event, 5PM – 7PM, Sports Café, Bridgeton MO
- Nov 7: Debrief: NDIA Systems/Mission Engineering Conference and INCOSE GLRC
- Nov 21: MGC Speakers Event, “Continuing Madness: Methods Behind System Architecting Challenged” 5PM – 7:30PM, Bella Milano, Shiloh IL
- Dec 5: 2019 MGC Holiday Party, 5PM – 7PM, Sports Café, Bridgeton MO

For the most up-to-date event listing, go to <http://incose-mgc.org/events>