



# A SYSTEMIC AND SYSTEMATIC METHODOLOGY FOR SOLVING COMPLEX PROBLEMS

## ***Course Descriptions***

This course focuses on systems engineering as a systemic and systematic methodology for solving complex problems. The course discusses thinking, systems thinking as a way of understanding a situation and the benefits of going beyond systems thinking to determine the problem and solution. The course applies systems thinking to systems engineering, provides the participants with a number of conceptual tools, looks at systems and their properties and then goes through each state of the system lifecycle discussing what systems engineers do in each state and how they do it; identifying the types of problems faced by systems engineering in each state, and the tools and methodologies available for the systems engineer to use in each state.

## ***Learning Outcomes***

- Understand the reasons for the different definitions of the term “system”, and the various viewpoints on systems engineering.

- Be able to identify the various types of problems faced by systems engineers in different States of the System Development Process (SDP).
- Be able to identify an appropriate tool or methodology to solve the problem.
- Be able to solve the problem.
- Understand the need for systems engineers with different competencies, skills and knowledge in different parts of the SDP.
- Understand that there isn't always a single "right" solution to a problem.
- Have improved systems and critical thinking abilities. Be better than average systems engineers for their level of experience.

### ***Who Should Attend?***

- Problem-solvers faced with complex problems.
- Engineers and engineering managers.
- Systems engineers who want to improve their systems engineering skills.

### ***Course Rates***

Early Bird Rates: 2,160 CHF. Regular Rates: 2,400 CHF

### ***Duration***

4 days

### ***Delivered By***



Joe Kasser

Joseph Kasser has been a practicing systems engineer for almost 50 years and an academic for 20 years. He is a Fellow of the Institution of Engineering and Technology (IET), a Fellow of the Institution of Engineers (Singapore), the author of "Perceptions of Systems Engineering", "Holistic Thinking: creating innovative

solutions to complex problems”, “A Framework for Understanding Systems Engineering” and “Applying Total Quality Management to Systems Engineering” and many INCOSE symposia and other conference and journal papers.

He is a recipient of NASA’s Manned Space Flight Awareness Award (Silver Snoopy) for quality and technical excellence for performing and directing systems engineering and other awards.

He holds a Doctor of Science in Engineering Management from The George Washington University.

He is a Certified Manager, a Chartered Engineer in both the UK and Singapore and holds a Certified Membership of the Association for Learning Technology.

He has performed and directed systems engineering in the USA, Israel and Australia. He gave up his positions as a Deputy Director and DSTO Associate Research Professor at the Systems Engineering and Evaluation Centre at the University of South Australia in early 2007 to move to the UK to develop the world’s first immersion course in systems engineering as a Leverhulme Visiting Professor at Cranfield University.

He spent 2008-2016 as a Visiting Associate Professor at the National University of Singapore where he taught and researched the nature of systems engineering, systems thinking and how to improve the effectiveness of teaching and learning in postgraduate and continuing education. He is currently based in Adelaide, Australia.

His many awards include:

- National University of Singapore, 2008-2009 Division of Engineering and Technology Management, Faculty of Engineering Innovative Teaching Award for use of magic in class to enrich the student experience.
- Best Paper, Systems Engineering Technical Processes track, at the 16th Annual Symposium of the INCOSE, 2006, and the 17th Annual Symposium of the INCOSE, 2007.
- United States Air Force (USAF) Office of Scientific Research Window on Science program visitor, 2004.
- Inaugural SEEC “Bust a Gut” Award, SEEC, 2004.
- Employee of the Year, SEEC, 2000.
- Distance Education Fellow, University System of Maryland, 1998-2000.
- Outstanding Paper Presentation, Systems Engineering Management track, at the 6th Annual Symposium of the INCOSE, 1996.

- Distinguished Service Award, Institute of Certified Professional Managers (ICPM), 1993.
- NASA Goddard Space Flight Center Community Service Award, 1990.
- The E3 award for Excellence, Endurance and Effort, Radio Amateur Satellite Corporation (AMSAT), 1981, and three subsequent awards for outstanding performance.
- Letters of commendation and certificates of appreciation from employers and satisfied customers including the:
  - American Radio Relay League (ARRL).
  - American Society for Quality (ASQ).
  - Association for Quality and Participation (AQP).
  - Communications Satellite Corporation (Comsat).
  - Computer Sciences Corporation (CSC).
  - Defence Materiel Organisation (Australia).
  - Institution of Engineers (Singapore).
  - IET Singapore Network.
  - Loral Corporation.
  - Luz Industries.
  - Systems Engineering Society of Australia (SESA).
  - University of South Australia.
  - United States Office of Personnel Management (OPM).
  - University System of Maryland.
  - Wireless Institute of Australia.