

Saturday

Track 1
Regency Ballroom E
Level 2

Track 2
Regency Ballroom F
Level 2

Track 3
Regency Ballroom G
Level 2

Track 4
Regency Ballroom C
Level 2

Track 5
Regency Ballroom B
Level 2

08
00

Tutorial: A.1 / How To Give Great Technical Presentations
(08:00 - 17:00)

Tutorial: A.2 / Systems Engineering Trade-off Analyses
(08:00 - 17:00)

Tutorial: A.3 / A Solutions based approach to MBSE architectures with UPDM and SysML
(08:00 - 17:00)

09
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A.4 / Systems Philosophy and its Relevance to SE
(09:00 - 17:00)

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Break
(10:00 - 10:30)

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12
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Lunch
(12:00 - 13:30)

13
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C.5 / The Experience
Accelerator Workshop
(13:30 - 16:55)

14
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Sunday

Track 1
Regency Ballroom E
Level 2

Track 2
Regency Ballroom F
Level 2

Track 3
Regency Ballroom G
Level 2

Track 4
Regency Ballroom C
Level 2

08
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Tutorial: E.1 / Essential Model-Based Systems Engineering
(08:00 - 17:00)

Tutorial: E.2 / Systems Engineering Management: Best Practices
(08:00 - 17:00)

Tutorial: E.3 / A Systems Engineering Approach to Safety and Cyber-Security
(08:00 - 17:00)

Tutorial: E.4 / Designing Agile Systems and Agile Systems Engineering Processes
(08:00 - 17:00)

09
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Break
(09:30 - 10:00)

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Monday

- Track 1
*Grand Ballroom E-K
Level 2*
- Track 2
*Grand Ballroom A
Level 2*
- Track 3
*Grand Ballroom B
Level 2*
- Track 4
*Grand Ballroom C
Level 2*
- Track 5
*Regency Ballroom EF
Level 2*
- Track 6
*Auditorium
Level 3*
- Track 7
*Regency Ballroom C
Level 2*
- Track 8
*Regency Ballroom C
Level 2*

08
00

Linda Katehi

Chancellor, UC Davis

Opening Plenary / The Importance of a Systems Approach

(08:00 - 09:30)

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Break
(09:30 - 10:00)

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<p>1.1.1 / Open Standards Simulation Flow for Heterogeneous System Models <i>(10:00 - 10:40)</i></p>	<p>1.2.1 / Implementing Structured Requirements to Improve Requirements Quality <i>(10:00 - 10:40)</i></p>	<p>Panel: 1.3 / Have We Systems Engineered Our Infrastructure Well Enough to Withstand a Cyberterrori... Attack? A Debate on the Issues <i>(10:00 - 12:10)</i></p>	<p>1.4.1 / INCOSE Certification Program Knowledge Exam Update 2015 <i>(10:00 - 10:40)</i></p>	<p>1.5.1 / SE Fundamentals – Why do we do it? <i>(10:00 - 10:40)</i></p>	<p>1.6 / Advancing INCOSE <i>(10:00 - 12:10)</i></p>	<p>Tutorial: 1.7 / Soft Skills for Systems Engineers <i>(10:00 - 16:55)</i></p>	<p>Tutorial: 1.8 / Architectural Reasoning Using Conceptual Modeling <i>(10:00 - 16:55)</i></p>
<p>1.1.2 / OSLC-KM: A knowledge management specification for OSLC-based resources <i>(10:45 - 11:25)</i></p>	<p>1.2.2 / Requirements Engineering for Control and Computing Systems at large research facilities: Process implementation</p>		<p>1.4.2 / Version 0.5 of the Proposed INCOSE Systems Engineering Competency Framework <i>(10:45 - 11:25)</i></p>	<p>1.5.2 / SE Lifecycles, Processes, and Lifecycle Management – What are they and how do they work? <i>(10:45 - 11:25)</i></p>			

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	<p>1.1.3 / Semantic-based representation, enrichment and computation of product breakdown structures <i>(11:30 - 12:10)</i></p>	<p>1.2.3 / On the Dynamics of Design of Future-proof Systems <i>(11:30 - 12:10)</i></p>		<p>1.4.3 / The Education Background of INCOSE Systems Engineering Professional Certification Program Applicants</p>	<p>1.5.3 / Requirements, Verification, and Validation – Why are they important? <i>(11:30 - 12:10)</i></p>				
<p>12 00</p>	<p>Lunch <i>(12:10 - 13:30)</i></p>								
<p>13 00</p>									
<p>14 00</p>	<p>Panel: 2.1 / MBSE Model Management - Ask The Experts! <i>(13:30 - 14:55)</i></p>	<p>2.2.1 / Considerations for a Framework for Specification and Measurement of Reserve Capacity in Software-Intensive Systems <i>(13:30 - 14:10)</i></p>	<p>2.3.1 / A Layered Requirement Development model for Railway Infrastructure Development <i>(13:30 - 14:10)</i></p>	<p>2.4.1 / Learning Systems Engineering by Teaching It <i>(13:30 - 14:10)</i></p>	<p>2.5 / Special SE and PM Interactive Panel <i>(13:30 - 14:55)</i></p>	<p>2.6.1 / Applications of Systems Engineering to Healthcare <i>(13:30 - 14:10)</i></p>			
<p>14 00</p>		<p>2.2.2 / On the Definition of Terms in a Requirements Expression <i>(14:15 - 14:55)</i></p>	<p>2.3.2 / An application of System Architecture in the Rail and Road Infrastructure <i>(14:15 - 14:55)</i></p>	<p>2.4.2 / Open Source Systems Engineering Guides, Deployment Packages and Support Tools for Very Small Enterprises</p>		<p>2.6.2 / Insights from Tailoring SE to the High Volume Internet of Things <i>(14:15 - 14:55)</i></p>			
<p>15 00</p>	<p>Break <i>(15:00 - 15:30)</i></p>								

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3.1.1 / Methodology and Tools for Next Generation Cyber-Physical Systems: The iCyPhy Approach
(15:30 - 16:10)

3.2.1 / A Set of Heuristics to Support Early Identification of Conflicting Requirements
(15:30 - 16:10)

3.3 / Transportation Roundtable: Systematize that! Taking a systems approach to Asset Management
(15:30 - 16:55)

Panel: 3.4 / Bringing SE Education to Non-Engineering Professionals
(15:30 - 16:55)

3.5.1 / Measuring the Uncertainty Impacts During the Systems Engineering Lifecycle
(15:30 - 16:10)

3.6.1 / Advancing the future state of digital model-centric engineering with the Department of Defense
(15:30 - 16:10)

3.1.2 / Ontology for Systems Engineering as a base for MBSE
(16:15 - 16:55)

3.2.2 / Structuring Requirements in Standard Templates
(16:15 - 16:55)

3.5.2 / Foundational Aspects of System Complexity Reduction
(16:15 - 16:55)

3.6.2 / Building a Systems Engineering Culture: A Path forward for DHS
(16:15 - 16:55)

17
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Tuesday

- Track 1
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Level 2*
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- Track 3
*Grand Ballroom B
Level 2*
- Track 4
*Grand Ballroom C
Level 2*
- Track 5
*Regency Ballroom EF
Level 2*
- Track 6
*Auditorium
Level 3*
- Track 7
*Regency Ballroom C
Level 2*
- Track 8
*Regency Ballroom C
Level 2*

08
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Jan Bosch

Chalmers University of Technology

Tuesday Keynote / Examining the need for change in strategy, innovation methods and R&D practices

(08:00 - 09:30)

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Break
(09:30 - 10:00)

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<p>Panel: 4.1 / The Direction of Systems Engineering: Ten Years From Now <i>(10:00 - 12:10)</i></p>	<p>4.2.1 / From initial investigations up to large-scale rollout of an MBSE method and its supporting workbench: the Thales experience <i>(10:00 - 10:40)</i></p>	<p>4.3.1 / The Use of MBSE in Infrastructure Projects – An MBSE Challenge Team Paper <i>(10:00 - 10:40)</i></p>	<p>Panel: 4.4 / Converging on Agile SE Priorities for INCOSE <i>(10:00 - 12:10)</i></p>	<p>4.5.1 / The Competent Systems Engineering Leader <i>(10:00 - 10:40)</i></p>	<p>4.6.1 / Project Manager's Guide to SE Measurement – An INCOSE Measurement Working Group Technical Product <i>(10:00 - 10:40)</i></p>	<p>Tutorial: 4.7 / Application of Missions and Means Framework (MMF) for System of Systems Requirements Analysis <i>(10:00 - 16:55)</i></p>	<p>Tutorial: 4.8 / Enabling System and Safety Co-Engineering based on standards. <i>(10:00 - 16:55)</i></p>
	<p>4.2.2 / An Initial Ontology for System Qualities <i>(10:45 - 11:25)</i></p>	<p>4.3.2 / Model-Based System Patterns for Automated Ground Vehicle Platforms <i>(10:45 - 11:25)</i></p>		<p>4.5.2 / Integrating SE with Other Disciplines – What are the crucial relationships? <i>(10:45 - 11:25)</i></p>	<p>4.6.2 / Systems Engineering of a Product Line – A Preview of the INCOSE PLE Handbook <i>(10:45 - 11:25)</i></p>		

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	<p>4.2.3 / Exploring the Role of Design in Systems Engineering <i>(11:30 - 12:10)</i></p>	<p>4.3.3 / Model-based Engineering of Emergence in a Collaborative SoS: Exploiting SysML & Formalism <i>(11:30 - 12:10)</i></p>		<p>4.5.3 / Getting your SE message across: Learn the tricks of the trade <i>(11:30 - 12:10)</i></p>	<p>4.6.3 / Driving the Automotive SE VISION 2025 Forward <i>(11:30 - 12:10)</i></p>			
<p>12 00</p>	<p>Lunch <i>(12:10 - 13:30)</i></p>							
<p>13 00</p>	<p>5.1.1 / One Size Fits All? A model of human growth and its application to systems thinking <i>(13:30 - 14:10)</i></p>	<p>5.2.1 / Creating an A3 Architecture Overview; a Case Study in SubSea Systems <i>(13:30 - 14:10)</i></p>	<p>5.3.1 / From Asking Forgiveness to Saying You're Welcome, Introducing Requirements Engineering to Medical Device Development</p>	<p>5.4.1 / Implementing the MBSE Cultural Change: Organization, Coaching and Lessons Learned <i>(13:30 - 14:10)</i></p>	<p>5.5.1 / A practical guide to assuring the system resilience to operational errors <i>(13:30 - 14:10)</i></p>	<p>Panel: 5.6 / SE Body of Knowledge (SEBoK) plans, how to have your say and get involved <i>(13:30 - 14:55)</i></p>		
<p>14 00</p>	<p>5.1.2 / Objects, Relations and Clusters for System Analysis <i>(14:15 - 14:55)</i></p>	<p>5.2.2 / Architecture Definition – A New Process in the ISO International Systems Engineering Standard <i>(14:15 - 14:55)</i></p>	<p>5.3.2 / SysML Activity Models for Applying ISO 14971 Medical Device Risk and Safety Management Across the System Lifecycle</p>	<p>5.4.2 / Principles for Agile Development <i>(14:15 - 14:55)</i></p>	<p>5.5.2 / Towards a Method to Describe Resilience to Assist System Specification <i>(14:15 - 14:55)</i></p>			
<p>15 00</p>	<p>Break <i>(15:00 - 15:30)</i></p>							

16
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<p>6.1.1 / Studying Flexible Design and Management Decision-Making in Engineering Systems Using Simulation Games <i>(15:30 - 16:10)</i></p>	<p>6.2.1 / Model Based Systems Engineering-Focus on the Initial Stages; "Get it Right in the First Stage" <i>(15:30 - 16:10)</i></p>	<p>Panel: 6.3 / Systems Approaches to Critical Illness: Investigating synergies with the Society for Complex Acute Illness <i>(15:30 - 16:55)</i></p>	<p>6.4.1 / Do Teams Using Agile Methodology Need Modeling? <i>(15:30 - 16:10)</i></p>	<p>Panel: 6.5 / New SE systems-security responsibility: how is this being accepted? <i>(15:30 - 16:55)</i></p>	<p>6.6.1 / Guidelines for creating systems <i>(15:30 - 16:10)</i></p>		
<p>6.1.2 / Use of Systemigrams to Identify Emergence in Complex Adaptive Systems <i>(16:15 - 16:55)</i></p>	<p>6.2.2 / A Systems Engineering Approach to Architecture Development <i>(16:15 - 16:55)</i></p>		<p>6.4.2 / System Life Cycle Trajectories: Tracking Innovation Paths Using System DNA <i>(16:15 - 16:55)</i></p>		<p>6.6.2 / INCOSE Systems Engineering Handbook Version 4: Updating the Reference for Practitioners <i>(16:15 - 16:55)</i></p>		

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Wednesday

- Track 1
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*Regency Ballroom EF
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*Auditorium
Level 3*
- Track 7
*Regency Ballroom C
Level 2*
- Track 8
*Regency Ballroom (C)
Level 2*

08
00

Ronnie McKenzie

Managing Director, WRP

Wednesday Keynote / Modelling South Africa's water and river systems

(08:00 - 09:30)

09
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Break

(09:30 - 10:00)

10
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	7.1.1 / Implementing Model Semantics and a (MB)SE Ontology in Civil Engineering & Construction Sector <i>(10:00 - 10:40)</i>	7.2.1 / Effective System Engineering Peer Reviews <i>(10:00 - 10:40)</i>	7.3.1 / Adaptive Knowledge Encoding for Agile Cybersecurity Operations <i>(10:00 - 10:40)</i>	7.4.1 / An Innovative Approach to the Development of Project Management Processes for Small-scale Projects in a large Engineering	7.5.1 / Fundamentals of System Complexity Measures for Systems Design <i>(10:00 - 10:40)</i>	Panel: 7.6 / SE Over Time - What is the Same & Different after 25 years? <i>(10:00 - 12:10)</i>	Tutorial: 7.7 / The Incremental Commitment Spiral Model (ICSM): Principles and Practices for Successful Systems and Software <i>(10:00 - 16:55)</i>	Tutorial: 7.8 / An Overview of the INCOSE SE Handbook Version 4 <i>(10:00 - 16:55)</i>
	7.1.2 / A Novel Methodology for the Application of Middle-Out, Model-Based Systems Engineering Techniques for City Waste Management	7.2.2 / The Virtual Instrumentation Diagram <i>(10:45 - 11:25)</i>	7.3.2 / A Systemic Framework to facilitate large and complex IT transformational Programs <i>(10:45 - 11:25)</i>	7.4.2 / An Integral Approach to Systems Engineering <i>(10:45 - 11:25)</i>	7.5.2 / Differentiating System Architectures: Applying Architecture Measures <i>(10:45 - 11:25)</i>			

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	<p>7.1.3 / An MBSE Approach to Support Organisational Reform of the Royal Australian Navy (11:30 - 12:10)</p>	<p>7.2.3 / System Interface Engineering (11:30 - 12:10)</p>	<p>7.3.3 / Techniques for Conducting Effective Concept Design and Design-to-Cost Trade Studies (11:30 - 12:10)</p>	<p>7.4.3 / When two is good company, but more is not a crowd (11:30 - 12:10)</p>	<p>7.5.3 / A Business Process view of Software: An effective measurement model to assess the operations readiness of software under</p>				
<p>12 00</p>	<p>Lunch (12:10 - 13:30)</p>								
<p>13 00</p>									
<p>14 00</p>	<p>Panel: 8.1 / What Is Systems Thinking and how can we teach it to Systems Engineers? (13:30 - 14:55)</p>	<p>8.2.1 / A modeling pattern for layered system interfaces (13:30 - 14:10)</p>	<p>8.3.1 / On the Development of a Retirement Concept (13:30 - 14:10)</p>	<p>8.4.1 / The "V" Model Reloaded (13:30 - 14:10)</p>	<p>Panel: 8.5 / MBSE for Infrastructure Projects – The Use of a Drawbridge as A Good Foundation to Build On (13:30 - 14:55)</p>	<p>8.6 / Automotive Roundtable – Today's Hurdles thru Tomorrows' Vision (13:30 - 14:55)</p>			
<p>15 00</p>	<p>Break (15:00 - 15:30)</p>								

16
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9.1.1 / Integrating Systems Safety into Systems Engineering during Concept Development
(15:30 - 16:10)

Panel: 9.2 / System Engineering – The Path to Innovation
(15:30 - 16:55)

9.3.1 / A Systems Engineering Framework for R&D Organizations
(15:30 - 16:10)

Panel: 9.4 / Solutions + Performance = Value: Integrated Engineering Program Management Approaches
(15:30 - 16:55)

9.5.1 / Structural Modeling Framework
(15:30 - 16:10)

Panel: 9.6 / Panel on Findings from the NSF Workshop on the Theory of Systems Engineering
(15:30 - 16:55)

9.1.2 / Guidance for Working Group Maintenance of the Systems Engineering Body of Knowledge (SEBoK), with Systems Security Engineering

9.3.2 / Finding Common Ground: Shared Benefits of the PMI PMBOK and the INCOSE Systems Engineering Handbook
(16:15 - 16:55)

9.5.2 / Model-Based Optimization of Learning Curves: Implications for Business and Government
(16:15 - 16:55)

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Thursday

	Track 1 <i>Grand Ballroom E-K Level 2</i>	Track 2 <i>Grand Ballroom A Level 2</i>	Track 3 <i>Grand Ballroom B Level 2</i>	Track 4 <i>Grand Ballroom C Level 2</i>	Track 5 <i>Cedar Ballroom Level 2</i>	Track 6 <i>Regency Ballroom E Level 2</i>	Track 7 <i>Regency Ballroom F Level 2</i>	Track 8 <i>Regency Ballroom G Level 2</i>
08 00	10.1.1 / Utilizing MBSE Patterns to Accelerate System Verification <i>(08:00 - 08:40)</i>	10.2.1 / Multi-Stakeholder Trade Space Exploration Using Group Decision Making Methodologies <i>(08:00 - 08:40)</i>	10.3.1 / Systems Engineering Principles and Practices in the Creation of a Film Original Score <i>(08:00 - 08:40)</i>	10.4.1 / Architectural Modelling Patterns for Systems of Systems <i>(08:00 - 08:40)</i>	Panel: 10.5 / How to fully integrate MBSE into the SE Body of Knowledge (SEBoK) <i>(08:00 - 09:30)</i>	Tutorial: 10.6 / Foundational Aspects of System Complexity Reduction <i>(08:00 - 12:10)</i>	Tutorial: 10.7 / Implementing Model Semantics and a (MB)SE Ontology in the Civil Engineering & Construction Sector through ISO/IEC 81346 ("A door is a door")	Tutorial: 10.8 / Cybernetics and Systems Thinking approach for Understanding... and Articulating Value of Enterprise Software Systems. <i>(08:00 - 12:10)</i>
	10.1.2 / Applicability of Industrial Test and Evaluation Practices to Future Nuclear Weapons <i>(08:45 - 09:25)</i>	10.2.2 / Whole Systems Trade Analysis <i>(08:45 - 09:25)</i>	10.3.2 / Accelerating MBSE Impacts Across the Enterprise: Model-Based S*Patterns <i>(08:45 - 09:25)</i>	10.4.2 / Integrating an Upgraded Constituent System in a System of Systems: A SysML Case Study <i>(08:45 - 09:25)</i>				
09 00	Break <i>(09:30 - 10:00)</i>							
10 00	Panel: 11.1 / Continues Verification - Want to speed the delivery of increasingly sophisticated and connected products? Look more to the left than to the right! <i>(10:00 - 12:10)</i>	Panel: 11.2 / Undergradu... Curricula in Systems Engineering <i>(10:00 - 12:10)</i>	11.3.1 / Change Agency for Systems Engineers <i>(10:00 - 10:40)</i>	11.4.1 / Creating Executable Agent-Based Models Using SysML <i>(10:00 - 10:40)</i>	11.5.1 / Product Line Engineering Comes to the Industrial Mainstream <i>(10:00 - 10:40)</i>			
			11.3.2 / Towards a Holistic Definition of Model-Based System Engineering: Paradigm, Modeling and Requirements <i>(10:45 - 11:25)</i>	11.4.2 / System of Systems Approaches for Mobile Source Transit Security <i>(10:45 - 11:25)</i>	11.5.2 / Model-based Product Line Engineering – Enabling Product Families with Variants <i>(10:45 - 11:25)</i>			
11 00								

11.3.3 / "Suits you sir! – choosing the right style of SE before tailoring to fit" Using Functional Failure Modes and Effects Analysis to guide selection of the	11.4.3 / Using Systems Engineering Practices for Distributed Control and Building Performance Simulation	11.5.3 / Multi-Level Product Platform Strategy for a Multi-Level Corporation (11:30 - 12:10)
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12
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Lunch
(12:10 - 13:30)

13
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Rieks Jager

E-ELT/METIS Consortium Project Manager, NOVA

14
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Closing Plenary / Challenges on Chajnantor; or how to create a high tech astronomical observatory at 5000 m in the Andes

(13:30 - 15:00)