Table of Contents

Table of Con	tents	
	ADVERSE CONDITION	S (ADV)
ADV -3966	Optimization of Procurement in the Construction Industry: What Today's Environment Has Taught Us	Robert Raynes
	BUILDING INFORMATION MO	ODELING (BIM)
BIM-3967	5D Planning in Earthworks Mining Constructions in Hilly Topography	Axel Franco Castro Cuadra; Franco Manuel Sánchez Romero, CCP; Julio Cesar Velasco Alvarez; Christian Chinchay Rios
BIM-4057	Leveraging BIM, Automation, and Machine Learning for Future Cost Assessment of Energy Conservation Measures	Patricia Kusumadjaja, CEP
BIM-4065	Key Benefits of 4D BIM Scheduling Implementation in Oil & Gas Projects and the Challenges	Muhammad Azri Ahmad Baharom; Khairul Hafiz Zolkipli; Rodzleana Abdul Razak
BIM-4087	BIM and VE Optimization for Construction Schedule and Cost Control	Dr. Kwame B.O. Amoah
BIM-4116	Integration of BIM, CPM Schedule, Short Interval Planning, Schedule Animation, and Progress on Fast Track Projects	Britton L. Wolf; Martin Figlarz; Tyler C. Simches
	CLAIMS AND DISPUTE RESO	LUTION (CDR)
CDR-3955	Assessing Contractor Responsible Concurrency When Using MIP 3.3 – Can a Sensible Procedure be Developed?	Ronald J. Rider; Dr. Stephen P. Warhoe, PE CCP CFCC FAACE Hon. Life
CDR-3963	Pitfalls to Avoid When Quantifying Extended Field Office Overhead Costs	Suleiman Al Rai, PE PSP; Cory R. Milburn, CCP CFCC PSP
CDR-3968	Validating Change Order Requests for Forensic Analysis	David Carlson; Keefe Mulligan; Khaled Alhamouri
CDR-3977	A Primer for Claims and Disputes (Claims 101)	John J. Ciccarelli, PE CCP PSP FAACE; Erin M. Fallon, CCP PSP
CDR-3997	Advanced Measured Mile Method Using GMM	Dr. Wael El Ghandour; Brahim Seddiki; Belkacem Foura
CDR-4026	The Hybrid Earned Value Analysis– A Proxy for the Measured Mile	Ryan N. Witters; Russell H. Wodiska, EVP
CDR-4027	The Risk of Mitigation - A Case Study of the Impact of Contemporaneously Changing Logic	Brenton J. Sadauskas, PSP; Russell H. Wodiska, EVP
CDR-4037	Forensic Delay Analysis of Disrupted Projects: An Alternative Approach Using System Dynamics	Alexander Voigt; Moneer S. Khalaf; Dr. Sam G. Mattar
CDR-4051	Assigning As-Planned Gains-Delays in MIP 3.4, Split Contemporaneous Period Analysis	Christopher W. Carson, CEP DRMP PSP FAACE; John J. Ciccarelli, PE CCP PSP FAACE; Kenji P. Hoshino, CFCC PSP FAACE; Greta A. Martin, PE PSP; Mark F. Nagata, PSP
CDR-4055	Total Cost Claim Versus Global Claim in Construction Claims	Dr. Tong Zhao, PE CCP CFCC PSP; Robert B. Cavoto
CDR-4059	Benefits for Dispute Boards with the Application of AACE International Recommended Practices	Luis Otavio Rosa
CDR-4068	Legal Pitfalls of the "Windows" Delay Analysis Method	Ahmed Y. El Sayed; Dr. Waleed M. El Nemr; Khalid S. Al-Gahtani
CDR-4072	Using a Measured Mile Productivity Analysis in Combination with a Collapsed As-Built Delay Analysis	Michelle McMillan, P.Eng.; Nawfal Merzouk, P.Eng.
CDR-4082	Schedule Updates Using Remaining Original Duration versus Remaining Work Duration	Thomas C. Long
CDR-4098	The Engineer/Initial Decision Maker's Role in Adjudicating Claims under FIDIC 2017 and AIA232-	Dr. Rania Fayed; Dr. Waleed M. El Nemr

2019 Contracts

CDR-4105	Assessing the Reasonableness and Reliability of	Brian Celeste, CCP CFCC PSP;
	CPM Schedules for Use in Forensic Schedule	Andrew Leavitt, CCT CST
	Analyses	
CDR-4111	Maximizing Early Claims Resolution Success	Kristin Glavitsch
	through Contemporaneous Project Data Capture	
CDR-4121	Death by a Thousand Cuts: Cumulative Impact	Colleen Lenz; David M. Ponte, PE CFCC
	Claims	
CDR-4123	The Schedule Delay Analysis for Subcontractors –	Charles E. Bolyard, Jr. CFCC PSP FAACE Hon. Life;
	Different by Necessity	Laura Freas
CDR-4138	The Theory of Delay: Timing and Basis for	Mark C. Sanders, PE CCP CFCC PSP
	Identifying and Measuring Delay	
CDR-4156	Construction Claim Work Book for Forensic Analysis	Dr. Wael El Ghandour
CDR-4158	Schedule Delay Analysis in a Multi-Prime	Joseph W. Wallwork, PE CCP CFCC PSP; Matthew A.
CDR-4136	Environment	Street, PSP; Eric J. Wallwork
	Environment	Street, FSF, Life J. Wallwork
	COST AND COUEDING CON	ITD 01 (000)
	COST AND SCHEDULE CON	•
CSC-4005	Field Overhead – Direct or Indirect Cost and the	Nickolas Florez, CFCC
	Proper Use of NAVFAC Form 4330/43	
CSC-4074	Contingency Drawdown and the Roadmap to the	Ghaith Al-Hiyari, CCP; Bahy Saleh, CCP PRMP;
	Project Cost at Completion	Sedat Akkaya
CSC-4102	Why Large Capital Projects Are Too Often Over	Glen R. Palmer, CFCC PSP FAACE;
	Budget and What to Do About It?	Dr. Lev Virine, P.Eng.
CSC-4122	Major Project Execution Cost Forecasting – Back to	Moses Y. Nkuah, CCP EVP
	Basics	
CSC-4154	Controlling Small Projects	Sudhakar R. Pulagam, P.Eng. CCP EVP
	PROFESSIONAL DEVELOPI	MENT (DEV)
DEV-4033		MENT (DEV) Ben Milner;
DEV-4033	Best Practices in Implementing Emerging	Ben Milner;
DEV-4033 DEV-4077	Best Practices in Implementing Emerging Technologies in Construction Controls	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP
	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls	Ben Milner;
	Best Practices in Implementing Emerging Technologies in Construction Controls	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP
	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge
DEV-4077	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation DATA SCIENCE AND ADVANCED	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge ANALYTICS (DSAA)
	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation DATA SCIENCE AND ADVANCED A Lean Operating Systems – Project and Portfolio	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge ANALYTICS (DSAA) John W. Blodgett; Bria Goggins; Erica Sinkey;
DEV-4077	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation DATA SCIENCE AND ADVANCED A Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge ANALYTICS (DSAA)
DEV-4077 DSAA-4001	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation DATA SCIENCE AND ADVANCED A Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated Reporting	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge ANALYTICS (DSAA) John W. Blodgett; Bria Goggins; Erica Sinkey; Randy Smith
DEV-4077	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation DATA SCIENCE AND ADVANCED A Lean Operating Systems — Project and Portfolio Management Data Visualization Using Integrated Reporting Artificial Intelligence & Machine Learning Impact on	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge ANALYTICS (DSAA) John W. Blodgett; Bria Goggins; Erica Sinkey; Randy Smith Muhammad Azri Ahmad Baharom;
DEV-4077 DSAA-4001	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation DATA SCIENCE AND ADVANCED A Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated Reporting Artificial Intelligence & Machine Learning Impact on Robust Project Control Improvement in Portfolio	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge ANALYTICS (DSAA) John W. Blodgett; Bria Goggins; Erica Sinkey; Randy Smith
DEV-4077 DSAA-4001 DSAA-4064	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation DATA SCIENCE AND ADVANCED A Lean Operating Systems — Project and Portfolio Management Data Visualization Using Integrated Reporting Artificial Intelligence & Machine Learning Impact on Robust Project Control Improvement in Portfolio Management	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge ANALYTICS (DSAA) John W. Blodgett; Bria Goggins; Erica Sinkey; Randy Smith Muhammad Azri Ahmad Baharom; Mohd Shahrizan Abd Rahman
DEV-4077 DSAA-4001	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation DATA SCIENCE AND ADVANCED A Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated Reporting Artificial Intelligence & Machine Learning Impact on Robust Project Control Improvement in Portfolio Management Integrated Real-Time Location System Information	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge ANALYTICS (DSAA) John W. Blodgett; Bria Goggins; Erica Sinkey; Randy Smith Muhammad Azri Ahmad Baharom; Mohd Shahrizan Abd Rahman Hassan Bardareh;
DEV-4077 DSAA-4001 DSAA-4064	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation DATA SCIENCE AND ADVANCED Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated Reporting Artificial Intelligence & Machine Learning Impact on Robust Project Control Improvement in Portfolio Management Integrated Real-Time Location System Information and 3D Point Clouds for Object Localization Onsite	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge ANALYTICS (DSAA) John W. Blodgett; Bria Goggins; Erica Sinkey; Randy Smith Muhammad Azri Ahmad Baharom; Mohd Shahrizan Abd Rahman
DSAA-4001 DSAA-4064 DSAA-4094	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation DATA SCIENCE AND ADVANCED Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated Reporting Artificial Intelligence & Machine Learning Impact on Robust Project Control Improvement in Portfolio Management Integrated Real-Time Location System Information and 3D Point Clouds for Object Localization Onsite Using Deep Neural Networks	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge ANALYTICS (DSAA) John W. Blodgett; Bria Goggins; Erica Sinkey; Randy Smith Muhammad Azri Ahmad Baharom; Mohd Shahrizan Abd Rahman Hassan Bardareh; Dr. Osama El Sayed Moselhi, P.Eng. FAACE
DEV-4077 DSAA-4001 DSAA-4064	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation DATA SCIENCE AND ADVANCED Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated Reporting Artificial Intelligence & Machine Learning Impact on Robust Project Control Improvement in Portfolio Management Integrated Real-Time Location System Information and 3D Point Clouds for Object Localization Onsite Using Deep Neural Networks Lean Operating Systems – Project and Portfolio	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge ANALYTICS (DSAA) John W. Blodgett; Bria Goggins; Erica Sinkey; Randy Smith Muhammad Azri Ahmad Baharom; Mohd Shahrizan Abd Rahman Hassan Bardareh; Dr. Osama El Sayed Moselhi, P.Eng. FAACE Vahan Hovhannisyan; Peter Zachares; Alan Mosca;
DSAA-4001 DSAA-4064 DSAA-4094	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation DATA SCIENCE AND ADVANCED Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated Reporting Artificial Intelligence & Machine Learning Impact on Robust Project Control Improvement in Portfolio Management Integrated Real-Time Location System Information and 3D Point Clouds for Object Localization Onsite Using Deep Neural Networks Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge ANALYTICS (DSAA) John W. Blodgett; Bria Goggins; Erica Sinkey; Randy Smith Muhammad Azri Ahmad Baharom; Mohd Shahrizan Abd Rahman Hassan Bardareh; Dr. Osama El Sayed Moselhi, P.Eng. FAACE
DSAA-4001 DSAA-4064 DSAA-4094 DSAA-4101	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation DATA SCIENCE AND ADVANCED Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated Reporting Artificial Intelligence & Machine Learning Impact on Robust Project Control Improvement in Portfolio Management Integrated Real-Time Location System Information and 3D Point Clouds for Object Localization Onsite Using Deep Neural Networks Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated Reporting	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge ANALYTICS (DSAA) John W. Blodgett; Bria Goggins; Erica Sinkey; Randy Smith Muhammad Azri Ahmad Baharom; Mohd Shahrizan Abd Rahman Hassan Bardareh; Dr. Osama El Sayed Moselhi, P.Eng. FAACE Vahan Hovhannisyan; Peter Zachares; Alan Mosca; Yael Grushka-Cockayne; Carlos Ledezma
DSAA-4001 DSAA-4064 DSAA-4094	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation DATA SCIENCE AND ADVANCED Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated Reporting Artificial Intelligence & Machine Learning Impact on Robust Project Control Improvement in Portfolio Management Integrated Real-Time Location System Information and 3D Point Clouds for Object Localization Onsite Using Deep Neural Networks Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated Reporting A Milestone in a Digital Transformation Journey:	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge ANALYTICS (DSAA) John W. Blodgett; Bria Goggins; Erica Sinkey; Randy Smith Muhammad Azri Ahmad Baharom; Mohd Shahrizan Abd Rahman Hassan Bardareh; Dr. Osama El Sayed Moselhi, P.Eng. FAACE Vahan Hovhannisyan; Peter Zachares; Alan Mosca;
DSAA-4001 DSAA-4064 DSAA-4094 DSAA-4101	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation DATA SCIENCE AND ADVANCED Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated Reporting Artificial Intelligence & Machine Learning Impact on Robust Project Control Improvement in Portfolio Management Integrated Real-Time Location System Information and 3D Point Clouds for Object Localization Onsite Using Deep Neural Networks Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated Reporting A Milestone in a Digital Transformation Journey: Implementation of ISO 19008 Taxonomy as Part of	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge ANALYTICS (DSAA) John W. Blodgett; Bria Goggins; Erica Sinkey; Randy Smith Muhammad Azri Ahmad Baharom; Mohd Shahrizan Abd Rahman Hassan Bardareh; Dr. Osama El Sayed Moselhi, P.Eng. FAACE Vahan Hovhannisyan; Peter Zachares; Alan Mosca; Yael Grushka-Cockayne; Carlos Ledezma
DEV-4077 DSAA-4001 DSAA-4064 DSAA-4094 DSAA-4101 DSAA-4109	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation DATA SCIENCE AND ADVANCED Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated Reporting Artificial Intelligence & Machine Learning Impact on Robust Project Control Improvement in Portfolio Management Integrated Real-Time Location System Information and 3D Point Clouds for Object Localization Onsite Using Deep Neural Networks Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated Reporting A Milestone in a Digital Transformation Journey: Implementation of ISO 19008 Taxonomy as Part of Chevron's Cost Engineering Data	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge ANALYTICS (DSAA) John W. Blodgett; Bria Goggins; Erica Sinkey; Randy Smith Muhammad Azri Ahmad Baharom; Mohd Shahrizan Abd Rahman Hassan Bardareh; Dr. Osama El Sayed Moselhi, P.Eng. FAACE Vahan Hovhannisyan; Peter Zachares; Alan Mosca; Yael Grushka-Cockayne; Carlos Ledezma Emily Smith; Abbas Shakourifar, PSP
DSAA-4001 DSAA-4064 DSAA-4094 DSAA-4101	Best Practices in Implementing Emerging Technologies in Construction Controls The Evolution to Well-Rounded Project Controls Professionals in Aviation DATA SCIENCE AND ADVANCED Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated Reporting Artificial Intelligence & Machine Learning Impact on Robust Project Control Improvement in Portfolio Management Integrated Real-Time Location System Information and 3D Point Clouds for Object Localization Onsite Using Deep Neural Networks Lean Operating Systems – Project and Portfolio Management Data Visualization Using Integrated Reporting A Milestone in a Digital Transformation Journey: Implementation of ISO 19008 Taxonomy as Part of	Ben Milner; Dr. Bahadir V. Barbarosoglu, CCP EVP PSP Dana N. Rutledge ANALYTICS (DSAA) John W. Blodgett; Bria Goggins; Erica Sinkey; Randy Smith Muhammad Azri Ahmad Baharom; Mohd Shahrizan Abd Rahman Hassan Bardareh; Dr. Osama El Sayed Moselhi, P.Eng. FAACE Vahan Hovhannisyan; Peter Zachares; Alan Mosca; Yael Grushka-Cockayne; Carlos Ledezma

ESTIMATING (EST)			
EST-4013	Confronting Price Escalation and Volatility Issues with Construction Materials	Neil D. Opfer, CCP CEP PSP FAACE	
EST-4016	Does Historical Data on Unique Government Nuclear Facilities Have an Expiration Date?	Robert G. Fatzinger, CEP; Alfred G. Levinson	
EST-4062	Using Case Based Reasoning to Improve Top-Down Estimate Accuracy	Dr. Nils J. Gransberg; Saf'a Maraqa; Beau Solimando	
EST-4104	FY2022 Department of Energy Project Management Escalation Study for Capital Assets	Matthew Zachary West; Dipali R. Amin	
EST-4120	Project Code of Accounts – Enhanced by Adding Construction or Environmental Remediation Industry Standards	Corey Clemmons; Dan Melamed, CCP EVP FAACE; Bryan A. Skokan, PE CCP; Jake Lefman; Rodney Lehman	
EST-4129	Utilization of Internal Cost Benchmarking in EPC Bidding	Mu Chen, CCP	
	EARNED VALUE MANAGEN	MENT (EVM)	
EVM-4025	Fully Integrating Earned Value and CPM Schedule Analysis at a Causal Level – A New Analytical Approach	J. Gerard Boyle, CFCC	
EVM-4050	Effectiveness of the Earned Schedule vs. the Earned Value	Keight Charles Navarro Hurtado, PSP	
EVM-4080	Using Earned Value and Parametric Methods to Estimate Remaining Costs of Construction	Glauco Bezerra da Silva	
EVM-4093	Use of Duration-Day Resource Earned Value to Monitor Performance	Christopher W. Carson, CEP DRMP PSP FAACE; Andrew Dick, PSP	
EVM-4133	Comparing Different Methods of Performance Measurement for Earned Value for Linear Infrastructure Industry with Recommendation	Abbas Saifi, CCP EVP PSP	
EVM-4159	A Case Study on Implementing the Integrated Project/Program Management Maturity and Environment Total Risk Rating using an Earned	Melvin G. Frank; Hala Sanboskani; David Kester; Mounir El Asmar; Dr. G. Edward Gibson Jr; Matthew Z. West	
	GLOBAL PROJECTS	(INT)	
INT-4030	Logistic Challenges in Large-Sized Theme Park Projects in China and An Appropriate Management Model	Lan Zhang; Tianqi Xiong; Renjun Luo	
INT-4035	Challenges of Contractor's Management Organization for a Large Semiconductor Project in China	Lan Zhang; Jian Chen; Jiang Lu	
	IT/IM IN PROJECT AND COST M	ANAGEMENT (IT)	
IT-4095	Bidding Process Budget and Proposals Comparative Analysis	Leandro André; Vitor dos Santos Borré	
	OWNER ISSUES (O	WN)	
OWN-3987	Main Considerations for Design and Implementation of Project Management Guidelines for Owner Companies	Reza Shahran; Abbas Shakourifar, PSP	
OWN-3989	Main Considerations for Design and Implementation of Project Management Guidelines	Micah J. Meads	
OWN-4031	for Owner Companies Implementing a Data-Driven Method to Reduce Deferred Maintenance and Repair	Avi Schwartz; Jodie Kim, PE; Eric Dembert; Yue Ou; Brandon Billy; Brendan Hurley	

OWN-4056	IProject Control for Owners' Small Project Portfolios	Stephen L. Cabano, FAACE	
OWN-4146	Project Controls Plan - Owner's Perspective	Syd Daneshyar, P.Eng. CCP	
OWN-4166	Project Contingency Forecasting – Owner's Perspective	Rajmohan Mishra	
OWN-4168	Enhancing the Control and Quality of Process Piping Manufacturing	Ghassan Al-Dossary, CCP; Abdullah Y. Saleh; Mohammed S. Alghamdi; Hussain A. Al-Omani, CCP CEP DRMP EVP PSP	
	PROJECT MANAGEME	NT (PM)	
PM-4045	Applying Influential Behaviors on Non-Operated Joint Venture Projects	Claudette Richard-Smith	
PM-4071	An Overview of Hydropower Construction Projects in Canada and Lessons Learned	Ali Montaser, P.Eng. CCP EVP PSP; Ahmed Montaser, EVP	
PM-4090	Last Line of Defense: Integration of Quality Control Initiatives With Project Controls for More Predictable Outcomes	Sedat Akkaya; Krishan Mittal, P.Eng.; Noor Al-Shaikh	
PM-4141	New Payment Provision for Win-Win Negotiations Between Contractor and Subcontractors Using Genetic Algorithms	Ashraf El Azouni; Ali Fares	
PM-4155	Interface Management Performance Framework for Brownfield Construction Projects using Construction Simulation Language	Dr. Wael El Ghandour	
PLANNING AND SCHEDULING (PS)			
PS-3986	A Proposal for a Standardized Set of Definitions of Work Availability	Michael A. Mac Guinness, C.Eng.	
PS-3990	Managing the Master Schedule for Multi-Prime Contracts	Pirouz Bozorgnia, PSP; Ibrahim Odeh; Weijia Chen	
PS-4018	Benefits and Applications of Half-Step Scheduling	Joao Paulo Matos Dias, PSP; Loami Cabral	
PS-4021	How to Save a Troubled Project: Case Studies of Transitioning to Takt Planning	A. Keith Rines, PE PSP	
PS-4042	Extending Your CPM Schedules to Embrace the	Santosh Bhat, PSP;	
PS-4044	Power of Linear Scheduling Integrating Sustainability Metrics with CPM Schedules: A Novel Approach with Applications in the Construction Industry	Christopher W. Carson, CEP DRMP PSP FAACE Dr. Achintyamugdha S. Sharma; Dr. Priyanka Deka; Goutam Jois, Esq.; Umesh K. Jois	
PS-4061	Past Performance Can Be a Good Indicator of Future Results	Tara L. Hannebaum; William C. Schwartzkopf	
PS-4070	Identifying and Understanding Schedule Revisions using Basic Primavera Software	Matthew Marzilli, PSP; Michael P. Ryan, PE PSP	
PS-4097	Float Enabled Resource Envelope: A New Tool for Resource Management	Kenji P. Hoshino, CFCC PSP FAACE; Richard J. Wood; Steinar Dalva	
PS-4126	Changing Schedule Performance Index Methodology	Kareem M. Khattab, PSP	
PS-4127	Application of Linear Schedules in Project Validation and Forensic Analysis	Aldo D. Mattos, CCP PSP FAACE	
PS-4131	The Value of Total Float Values in Schedule Analysis: Ensuring and Restoring the Integrity of Schedule Float Values	Saeid Khademagha, P.Eng. PSP	
PS-4151	Advanced CPM Milestone Review	Ronald M. Winter, PSP FAACE	
PS-4157	Scheduling Requirements Across the U.S. Federal Government: Summary and Recommendations	Michael R. Nosbisch, CCP PSP FAACE; Diane Bragoni, PSP	

DECISION AND RISK MANAGEMENT (RISK)

RISK-3965	Perceptions and Use of Building Price Data in Australia	Dr. Anthony J. Mills; Dr. Argaw Gurmu; Dr. Citra Ongkowijoyo; Dr.Wenying Yao; Dr. Alexia A. Nalewaik, CCP FAACE; Anthony Lieberman
RISK-4038	Lessons Learned from the US Department of State, Bureau of Overseas Buildings Operations, Office of Construction Management on its Enterprise-wide Implementation of Project Risk Management	Sholeh Lee, PE; Benjamin R. Hodel; Justin Jacobsen, PRMP PSP; Michael T. Siburt, PE CCP PRMP PSP
RISK-4091	Reducing Subjectivity of Qualitative Risk Scoring and Analysis	Dr. Ashraf Salem, P.Eng.; Dr. Emad Elwakil, PE CCP
RISK-4118	A Causal Approach to Integrated Risk Analysis Using Time Performance Factors	J. Gerard Boyle, CFCC
RISK-4124	Risk Management Lessons Learned	Christopher P. Caddell, PE CCP DRMP FAACE
RISK-4144	A Risk-Based Approach to Construction Management	Chloe E. Edwards; Yasaman Shahtaheri
	TOTAL COST MANAGEM	IENT (TCM)
TCM-4048	Implementation of an Integrated Phase-Gate Project Controls Process	Christopher W. Carson, CEP DRMP PSP FAACE; Leo Carson-Penalosa
TCM-4079	Aligning Organizational Drivers with the Benefit of	Dana N. Rutledge; Stuart B. Wood;

TCM-4048	Implementation of an Integrated Phase-Gate	Christopher W. Carson, CEP DRMP PSP FAACE;
	Project Controls Process	Leo Carson-Penalosa
TCM-4079	Aligning Organizational Drivers with the Benefit of	Dana N. Rutledge; Stuart B. Wood;
	Projects Controls for Aviation Government Entities	Steven Andersen
TCM-4106	Developing Cost-Models from a Contractor's Cost- Loaded Schedule	John B. Newman, CCP CEP
TCM-4139	Performing Under Pressure – Implementing TCM Principles in an Evolving Project Environment	Courtney J. Gosewisch, CCP