

ISHM 2018 CLASS SCHEDULE

Class Level		Presentation Class Session																					
Intermediate +1		Tuesday, May 15th										Wednesday, May 16th										Thursday, May 17th	
Period	LEVEL	1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	2.5	2.6	3.1	3.2	3.3									
Room #	LEVEL	11:10 AM to 12:00 PM	1:20 PM to 2:10 PM	2:20 PM to 3:10 PM	4:10 PM to 5:00 PM	8:00 AM to 9:00 AM	9:00 AM to 9:50 AM	10:50 AM to 11:40 AM	1:20 PM to 2:10 PM	2:20 PM to 3:10 PM	4:10 PM to 5:00 PM	8:00 AM to 9:00 AM	9:00 AM to 9:50 AM	10:50 AM to 11:40 AM									
1	No Class	Measurement of Cryogenic LNG	Hydrocarbon Dew Point Effects on Gas Flow Measurement	Evaporation Loss Measurement from Storage Tanks	Sample Conditioning & Contaminant Removal for Vapor Water Determination	Determination of H2S and Total Sulfur in Natural Gas	SCADA and Field Data Capture in the Cloud	Statistical Control of Meter Factors - A Simplified Approach	Effects of Petroleum Properties on Pipeline Measurement	Multiphase Flow Measurement	BTU Analysis Using a Gas Chromatograph	Overview of GPA 2172/API 14.5 Revision	Cone Meters for Liquid and Gas Measurement										
2	Moisture Measurement Using Laser Spectroscopy	DOT Qualification Training for Measurement and Control Technicians	Testing, Maintenance and Operation of Electronic Flow Computers for the Gas Industry	Selection, Sizing and Operation of Control Valves for Gases and Liquids	Operation and Problems Associated with Prover Detector Switches	Offshore Liquid FPSO Measurement Systems	Identifying and Eliminating Effects of Induced Signals on Measurement System Electronics	Laboratory Gas Analysis Validation Methods	Measurement of Petroleum on board Marine Vessels	Flow Calibrating Ultrasonic Gas Meters	Causes and Cures of Regulator Instability	An Optical Hydrocarbon Analyzer for On-Line Hydrocarbon Gas Speciation and Measurement	On-line Flow Computers for Liquid Custody Transfer										
3	Production Equipment Effects on Gas Measurement	Coping with Changing Flow Requirements at Existing Meter Stations	Thermometry in Gas Measurement	Basics of High Pressure Measuring and Regulating Station Design	Fundamentals of Gas Turbine Meters	The "Not So Small" Small Volume Prover	Mass Meters for Gas Measurement	Odorization in Natural Gas	Energy Measurement Using Ultrasonic Meters and Gas Chromatography	Advanced Diagnostic Measurements and Verification with Coriolis Flow meters	API MPMS Chapter 22.2 Tailing Protocol for Differential Pressure Flow Measurement Devices	Compressibility of Natural Gas	LACT Unit Proving - The Role of the Witness										
4	Fundamentals in Ethanol Blending	Condition-Based Monitoring of Natural Gas Ultrasonic Measurement Facilities	The Evolution of Data Collection for Gas Measurement	Measurement Policies and Procedures - Development and Implementation Considerations	Loading of Crude into Rail Tank Cars	Auditing Electronic Gas Measurement per API Chapter 21.1	In-Situ (On-Site) Gas Meter Proving	Office Fittings and Meter Tubes	Benefits from Timely Analysis of Measurement Data	Fundamentals of Sampling Natural Gas for BTU Determination	Effective Use of Deadweight Tester	Crude Quality - What is Involved and Why it's Important											
9	Overview of Changes to API2350 Tank Overfill Protection	Challenges in Allocation Measurement Panel (Hour 1 of 2)	Challenges in Allocation Measurement Panel (Hour 2 of 2)	Engineering Ethics	Accuracy Diagnostics of Liquid Ultrasonic Flow Meters Panel (Hour 1 of 2)	Accuracy Diagnostics of Liquid Ultrasonic Flow Meters Panel (Hour 2 of 2)	Mass Meters for Liquid Measurement	Data Validation - Requirements of an EGM Editor	Determination of Hydrocarbon Dewpoint using a Gas Chromatograph	No Class	Flare Measurement Using Advanced Ultrasonic Technology	BTU Determination of Natural Gas Using a Portable Chromatograph	Conventional Measurement in Unconventional Plays										
10	The Effects of Additives on Metering in Liquid Pipelines	Basic Applications for Flow Computers and Telemetry Systems	Reducing Measurement Uncertainty in Process Gas Quality Measurements	Proving Liquid Ultrasonic Meters	Ethernet for SCADA Systems	Measuring Natural Gas at Natural Gas Vehicle (NGV) Refueling Stations	Measurement of Dense Phase Fluids	Orifice Meter Tube Fabrication Shop Inspection Program	Program for Training a Gas Measurement Technician	Leak Detection on Petroleum Pipelines	Impact of Regulation on Greenhouse Gas Measurement	OPC Fundamentals	Gas Meter Selection										
11	Recent Innovations in License Radio Technology for Gas Measurement	Manufactured Meter Pulses - An Explanation	Using Control Charts to Predict Failures of Measurement Devices	Improving Flow Measurements with Improved Calibration & Data Handling Procedures	Establishing a Development Program for Hydrocarbon Measurement Staff	Contributors to Historical Advances in Natural Gas Measurement	Field and Laboratory Testing of Sediment and Water in Crude Oil	Auditing Gas Measurement and Accounting Systems	Measurement and Regulation Operation of a LDC	Wireless Economics 101	LNG Measurement by Static and Dynamic Methods Panel (Hour 1 of 2)	LNG Measurement by Static and Dynamic Methods Panel (Hour 2 of 2)	Simplifying Real-time and Historical (ETM) Data Collection for the Oil & Gas Industry										
12	Master meter prover certifications per API MPMS 4.9.3	Effects of Atmospheric Pressure on Gas Measurement	Determination of Trace Oxygen in Natural Gas	The Uncertainty of a Waterdraw Calibration via Gravimetric Calibration on Small Volume Provers	Roles and Responsibilities of Witnessing a Prover Calibration	Low Pressure Gas Measurement	Cyber Security	Thermal Mass Flow Meters for Gas Measurement	No Class	LPG Terminal Operations and Measurement	The Measurement Data Handling Process-Now and in the Future	Equipment and Techniques used in Real Time Component Volume Calculations for Natural Gas Liquid Measurement	Preparing a Prover for Waterdraw Calibration										
15	Interface Detection in Liquid Pipelines	Liquid Measurement Field Surveys	Methods for Certifying Measurement Equipment	Spread Spectrum Radio Technology for Gas Measurement	Update on API, AGA, GPA, and ASTM Standards - Measurement Activities (Hour 1 of 2)	Update on API, AGA, GPA, and ASTM Standards - Measurement Activities (Hour 2 of 2)	Wet Gas Measurement	Uncertainties within Centrifuge Methods and Mitigations	Measurement Station Inspection Documentation Program and Guide	Basic Electronics for the Field Technician	No Class	Gas Ultrasonic Diagnostics	Refined Product Sampling Systems										
16	Shrinkage Losses Resulting from Liquid Hydrocarbon Mixing	Real-Time Electronic Gas Measurement	New Differential Meters in Natural Gas	Understanding Hazardous Area Classifications	Viscosity and its Application in Liquid Hydrocarbon Measurement	Measuring High Viscosity Liquids with Flow Meters	Effects and Control of Pulsation in Gas Measurement	Helical Turbine Meters for Liquid Measurement	Liquid Measurement Station Design	Considerations in Sampling Wet, High Pressure, or Supercritical Natural Gas	No Class	Application of Turbine Meters in Liquid Measurement	Flare Measurement Practices										
17	Sampling Challenges Associated With Unconventional Gas Sources	Mass Measurement of Natural Gas Liquid Mixtures	Turbine Meter Diagnostics	Techniques of Gas Spot Sampling	Application in Liquid Measurement Using Clamp-On Ultrasonic Technology	Ultrasonic Meters and Measurement Accuracy in Leak Detection	Orifice Meters for Liquid Measurement	Meter Factor Transferability for Coriolis Mass Flow Meters	On-line Water Measurement Devices in Liquid Service	Pycnometer Installation, Operation and Calibration	Displacement Meters for Liquid Measurement	Controlling Surges in Liquid Pipelines	Volumetric Measurement of Liquefied Petroleum Gas										
18	Application of Denatometers to Liquid Measurement	Troubleshooting Liquid Pipeline Losses and Gain (Hour 1 of 2)	Troubleshooting Liquid Pipeline Losses and Gain (Hour 2 of 2)	Advanced Application of Liquid Flow Computers	Flow Conditioning for Fluid Flow Measurement	Revision of AGA 9 Gas Ultrasonic Meter Standard	Measurement Accuracy and Source of Error in Tank Gauging	Chromatographic Analysis of Natural Gas Liquids	Determination of Water Vapor Content in Natural Gas	Over Pressure Protection Methods	Proving Liquid Meters with Microprocessor Based Pulse Outputs	Operational Experience with Small Volume Provers	Transient Lightning Protection for Electronic Measurement Devices										
19	Design Considerations for Analyzer Enclosure Systems	Theory and Application of Pulse Interpolators to Prover Systems	No Class	Application of Flow Computers for Gas Measurement and Control	Automated Truck Loading Systems	Water Vapor Effects on Natural Gas Measurement	Gauging, Testing and Running of Lease Tanks	RF Fundamentals for IoT	Chromatograph Maintenance and Troubleshooting	Calibration of Liquid Provers	Contaminant Accumulation Effect on Gas Ultrasonic Flow Meters	Sampling and Conditioning of Natural Gas Containing Entrained Liquids	Fundamentals of Gas Chromatography										
20	Chromatograph Applications and Problems from the User's Standpoint	Marine Crude Oil Terminal Measurement Systems	Measurement Methods for Liquid Storage Tanks	Fundamentals of Liquid Turbine Meters	Principles of Multi-Dimensional Gas Chromatography	Communication Systems for Gas Measurement Data	Design of Distribution Metering and Regulating Stations	Crude Oil Sampling for Custody Transfer Panel (Hour 1 of 2)	Crude Oil Sampling for Custody Transfer Panel (Hour 2 of 2)	Energy Measurement using Flow Computers and Chromatography	Smart Transmitter Selection, Calibration and Installation	Installation and Operation of Denatometers	Determination of Leakage and Unaccounted for Gas										
A	Fundamentals of Gas Measurement I	Fundamentals of Gas Measurement II	Fundamentals of Gas Measurement III	New Technologies in S&W Measurement	Fundamentals of Gas Measurement I (Repeat Class)	Fundamentals of Gas Measurement II (Repeat Class)	Fundamentals of Gas Measurement III (Repeat Class)	Proving Coriolis Flow Meters Panel (Hour 1 of 2)	Proving Coriolis Flow Meters Panel (Hour 2 of 2)	Measurement Scene Investigations	Review & Discussion of BLM orders 3173, 3174, & 3175 (Hour 1 of 2)	Review & Discussion of BLM orders 3173, 3174, & 3175 (Hour 2 of 2)	Effects of Abnormal Conditions on Accuracy of Orifice Measurement										
B	Installation and Operation Errors in Gas Measurement	New Ideas in Measurement (Hour 1 of 2)	New Ideas in Measurement (Hour 2 of 2)	The Role of BLM in Oil and Gas Measurement	Determination of Hydrocarbon Dew Point in Natural Gas (Hour 1 of 2)	Determination of Hydrocarbon Dew Point in Natural Gas (Hour 2 of 2)	Techniques of Gas Composite Sampling	Effects of Abnormal Conditions on Accuracy of Orifice Measurement (Repeat Class)	Crude Oil Blending	Ultrasonic Meters for Liquid Measurement	Proper Handling & Maintenance of Natural Gas Calibration Cylinders	Witnessing Orifice Meter Verification / Calibration	Auditing Gas Laboratories										
D	Resolving Liquid Measurement Differences	Estimating Measurement Uncertainty for Gas Flow Meters	Understanding Liquid Meter Proving and Proving Reports	Crude Oil Gauging by Truck - Measurement Alternatives	Measurement Economics	Auditing Liquid Measurement	Operational Experience with Liquid Coriolis Meters	Measurement Management Systems	Introduction to Uncertainty in Measurement	Liquid Meter Proving Techniques	Estimating Measurement Uncertainty for Gas Flow Meters (Repeat Class)	Calculation of Liquid Petroleum Quantities	Online Color Measurement of Refined Products & Condensate										
E	Fundamentals of Liquid Measurement I - Physical Properties	Fundamentals of Liquid Measurement II - Static	Fundamentals of Liquid Measurement III - Dynamic	Guide to Troubleshooting Problems with Liquid Meters and Provers	Fundamentals of Liquid Measurement I - Physical Properties (Repeat Class)	Fundamentals of Liquid Measurement II - Static (Repeat Class)	Fundamentals of Liquid Measurement III - Dynamic (Repeat Class)	SCADA Systems	Liquid Flow Provers	Office Meters - Operation and Maintenance	Introduction to Gas Quality Using SCADA Systems	Verification / Calibration of Devices Used in Liquid Measurement	Design, Operation and Maintenance of LACT Units										

		Hands-On Class Session												
		Tuesday, May 15th					Wednesday, May 16th					Thursday, May 17th		
Period	LEVEL	1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	2.5	2.6	3.1	3.2	3.3
Room #	LEVEL													
5	Rosemount - Rosemount Smart Transmitters	Spirit IT - Spirit IT Flow Computers (Hour 1 of 2)	Spirit IT - Spirit IT Flow Computers (Hour 2 of 2)	Fisher Controls - High Pressure Regulators	Rosemount Analytical (Daniel) - Gas Chromatograph Configuration (Hour 1 of 2)	Rosemount Analytical (Daniel) - Gas Chromatograph Configuration (Hour 2 of 2)	Daniel - Senior Orifice Fitting Operations & Maintenance	Daniel - Daniel Orifice Fitting & Tube Inspection (Hour 1 of 2)	Daniel - Daniel Orifice Fitting & Tube Inspection (Hour 2 of 2)	YZ Systems - YZ Odorization	Schneider Electric - Realiso Software For Scalpack Flow Computers (Hour 1 of 2)	Schneider Electric - Realiso Software For Scalpack Flow Computers (Hour 2 of 2)	Dresser Meters And Instruments - Dresser Rotary Meters	
7	TechnipFMC - TechnipFMC Liquid Turbine Meter Diagnostics	Omni - Omni Flow Computers (Hour 1 of 2) (Repeat Class)	Omni - Omni Flow Computers (Hour 2 of 2) (Repeat Class)	Siemens - Siemens Clamp-on Ultrasonic Meter	No Class	TechnipFMC - FMC-Invalco BS&W Monitor	TechnipFMC - FMC Liquid Ultrasonic Meters	Mooney - Pilot Operated Regulators (Hour 1 of 2)	Mooney - Pilot Operated Regulators (Hour 2 of 2)	Brodie International - Positive Displacement Meters	Uniphos Envirotronics Inc. - Field Measurements with Detector Tubes	No Class	TechnipFMC - FMC-Invalco BS&W Monitor	
8	Ametek - Ametek Dead Weight Tester	Daniel - Daniel Ultrasonic Meters (Hour 1 of 2)	Daniel - Daniel Ultrasonic Meters (Hour 2 of 2)	YZ Systems - YZ Natural Gas Sampler O&M	Flow-Cal Measurement Applications - ProverIT and ProverIT (Hour 1 of 2)	Flow-Cal Measurement Applications - ProverIT and ProverIT (Hour 2 of 2)	Flexim - Flexim Clamp On Ultrasonic Meters	Spectrasensors - Tunable Diode Laser Moisture Analyzers (Hour 1 of 2)	Spectrasensors - Tunable Diode Laser Moisture Analyzers (Hour 2 of 2)	Rosemount - Rosemount Smart Transmitters	Thermo Scientific - Autolap Pro Gas Flow Computer (Hour 1 of 2)	Thermo Scientific - Autolap Pro Gas Flow Computer (Hour 2 of 2)	MTS - Automatic Tank Gauging Magnetostrictive Technology	
12	PGI - PGI Interceptor Composite Sampler O&M	Remote Automation Solutions - ROC800L Liquid Flow Computer (Hour 1 of 2)	Remote Automation Solutions - ROC800L Liquid Flow Computer (Hour 2 of 2)	Schneider Electric - Acretech Wireless Instrumentation	Flow MD - Flow MD Small Volume Provers (Hour 1 of 2)	Flow MD - Flow MD Small Volume Provers (Hour 2 of 2)	Flow MD and Coastal Flow - Witnessing prover calibrations (Gravimetric Method)	SICK, Inc. - SICK Gas Ultrasonic Meters (Hour 1 of 2)	SICK, Inc. - SICK Gas Ultrasonic Meters (Hour 2 of 2)	Emerson - Flow Computers/RTU Wireless Wellhead Automation	Emerson - FB1000/2000 Gas Flow Computer (Hour 1 of 2)	Emerson - FB1000/2000 Gas Flow Computer (Hour 2 of 2)	OlumTech - Olum Wireless Communications	
W	Micro Motion - Micro Motion Liquid Coriolis Meters	Micro Motion - Micro Motion Gas Coriolis Meters	TechnipFMC - FMC Liquid Positive Displacement Meters	TechnipFMC - Coriolis Meters	SICK, Inc. - FLOW/SIC500 Ultrasonic Meter (Hour 1 of 2)	SICK, Inc. - FLOW/SIC500 Ultrasonic Meter (Hour 2 of 2)	Fisher - Control Valves	TechnipFMC - ACCULOAD Family Preset Controller (Hour 1 of 2)	TechnipFMC - ACCULOAD Family Preset Controller (Hour 2 of 2)	A+ Corporation - Sample Probe Installation	Flow-Cal Measurement Applications - Flow-Cal Measurement Software (Hour 1 of 2)	Flow-Cal Measurement Applications - Flow-Cal Measurement Software (Hour 2 of 2)		
Y	Cameron - Maintenance Block & Bleed 4-Way Valves	ABB Totalflow - Gas Chromatograph (Hour 1 of 2)	ABB Totalflow - Gas Chromatograph (Hour 2 of 2)	Flow-Cal Measurement Applications - TestIT Meter Testing Software	ABB Totalflow - Advanced Flow Computers - WinCCU Data Collection & Management Software (Hour 1 of 2)	ABB Totalflow - Advanced Flow Computers - WinCCU Data Collection & Management Software (Hour 2 of 2)	No Class	Omni - Omni Flow Computers (Hour 1 of 2)	Omni - Omni Flow Computers (Hour 2 of 2)	Daniel - Daniel Liquid Turbine Meters	ABB Totalflow - ABB Gas Flow Computers (Hour 1 of 2)	ABB Totalflow - ABB Gas Flow Computers (Hour 2 of 2)	Cameron - Cameron Crude Oil Sampling	

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