

ISHM 2024 CLASS SCHEDULE																
Presentation Class Session																
Tuesday, May 14th				Wednesday, May 15th				Thursday, May 16th								
Period	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 #	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 9:10 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			
103	RF (Radio Frequency) Fundamentals of IoT	API Orifice Meter Database Analysis by Energy Correlation Method	No Class	Engineering Ethics	No Class	Benefits around Timely Analysis of Measurement Data	Sample Conditioning & Contaminant Removal for Water Vapor Determination	Establishing a Development Program for Hydrocarbon Measurement Staff	Impact of Hydrogen Blending on Natural Gas Analysis	No Class	Witnessing Orifice Meter Verification/Calibration	No Class	No Class			
104	Estimating Measurement Uncertainty for Gas Flow Meters	LNG Measurement by Static and Dynamic Methodologies Panel (Hour 1 of 2)	LNG Measurement by Static and Dynamic Methodologies Panel (Hour 2 of 2)	Overview of Changes to API 2350 Tank Overfill Protection	Measurement Policies and Procedures - Development and Implementation Considerations	Auditing Gas Laboratories	Improving Flow Measurements with Improved Calibration & Data Handling Procedures	Manufactured Meter Poles - An Explanation	No Class	Auditing Gas Measurement and Accounting Systems	Refined Product Sampling Systems	API MPMS Chapter 22.2 Testing Protocol for Differential Pressure Flow Measurement Devices	Improvement of Historic Proving Practice through API MPMS Chapter 13 Statistical Methods			
105	Orifice Meter Diagnostic Systems	Preparing a Prover for Waterdraw Calibration	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 vs. Gravimetric Calibration on Small Volume Provers	Auditing Electronic Gas Measurement per API Chapter 21.1	Application in Liquid Measurement Using Clamp-On Ultrasonic Technology	Carbon Dioxide Measurement Experience	Sample System Field Certification Data Analysis and Troubleshooting	The Measurement Data Handling Process-Now and in the Future	Fluid Volume Calculations	Cyber Security			
106	Sampling and Conditioning of Natural Gas Containing Entrained Liquids	Best Practices for the Design of Gas Metering Systems for Custody Transfer	Interface Detection in Liquid Pipelines	Measurement and Regulation Operation of a LDC	Methods for Certifying Measurement Equipment	PID Control Implementation in Electronic Flow Computers	No Class	Spread Spectrum Radio Technology for Gas Measurement	Wet Gas Measurement	Uncertainties within Centrifuge Methods and Mitigations	Measurement Station Inspection Documentation Program and Guide	Basic Electronics for the Field Technician	Liquid Tank Level - Interface Measurement			
201	Overview of GPA 2172/API 14.5 Revision	BTU Analysis Using a Gas Chromatograph	Multiphase Flow Measurement	Determination of H2S and Total Sulfur in Natural Gas	Evaporation Loss Measurement from Storage Tanks	New Technologies in S&W Measurement	Understanding How to Apply GPA 2145, to Determine Gas to Liquid and Liquid to Gas Equivalents	Uncertainty Considerations of Tank Static Measurement System	SCADA and Field Data Capture in the Cloud	Effects of Petroleum Properties on Pipeline Measurement	Calibration Transferability for Coriolis Mass Flow Meters	Guidelines for Pipeline Fill, Pack, and Determination Methodology	Chromatographic Analysis of Natural Gas Liquids			
202	An Optical Hydrocarbon Analyzer for On-Line Hydrocarbon Gas Speciation and Measurement	Hydrocarbon Dew Point Effects on Gas Flow Measurement	Moisture Measurement Using Laser Spectroscopy	No Class	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	Water Vapor Effects on Natural Gas Quality and Natural Gas Measurement	Measurement of Petroleum on board Marine Vessels	Measuring Natural Gas at Natural Gas Vehicle (NGV) Refueling Stations	Causes and Cures of Regulator Instability			
203	Advanced Diagnostic Measurements and Verification with Coriolis Flow Meters	LACT Unit Proving - The Role of the Witness	Fundamentals of Gas Turbine Meters	Field and Laboratory Testing of Sediment and Water in Crude Oil	Compressibility of Natural Gas	Basics of High Pressure Measuring and Regulating Station Design	Production Equipment Effects on Gas Measurement	Thermometry in Gas Measurement	Mass Meters for Gas Measurement	Coping with Changing Flow Requirements at Existing Meter Stations	Energy Measurement Using Ultrasonic Meters and Gas Chromatography	The "Not So Small" Small Volume Prover	Production and Productivity Optimization Through Wireless Sensing			
204	Discipline of Sizing SVP for All Metering Technologies	Crude Oil Gathering - Gauging Testing and Truck Measurement Alternatives (Hour 1 of 2)	Crude Oil Gathering - Gauging Testing and Truck Measurement Alternatives (Hour 2 of 2)	Mass Meters for Liquid Measurement	Challenges in Allocation Measurement Panel (Hour 1 of 2)	Challenges in Allocation Measurement Panel (Hour 2 of 2)	Small Scale LNG Measurement	No Class	Effective Use of Deadweight Testers	Data Validation - Requirements of an EGM Editor	BTU Determination of Natural Gas Using a Portable Chromatograph	Conventional Measurement in Unconventional Plays	Material Loss Control in Refineries and Petrochemical Plants			
208A	Fundamentals of Gas Measurement I	Fundamentals of Gas Measurement II	Fundamentals of Gas Measurement III	Flow Calibrating Ultrasonic Gas Meters	Proving Coriolis Flow Meters Panel (Hour 1 of 2)	Proving Coriolis Flow Meters Panel (Hour 2 of 2)	Determination of Water Vapor Content in Natural Gas	Overview of Revised API Chapter 5.6 Liquid Coriolis Meters (Panel)	Ultrasonic Meters for Liquid Measurement	Measurement Scene Investigations	Allocation Measurement 101- Fundamentals of Allocations	Large Scale LNG Measurement	Allocations 201-Principles of Allocations			
208B	Effects of Abnormal Conditions on Accuracy of Orifice Measurement	New Ideas in Measurement (Hour 1 of 2)	New Ideas in Measurement (Hour 2 of 2)	No Class	Review & Discussion of BLM Orders 3173, 3174, & 3175 (Hour 1 of 2)	Review & Discussion of BLM Orders 3173, 3174, & 3175 (Hour 2 of 2)	The Role of BLM in Oil and Gas Measurement	Installation and Operation Errors in Gas Measurement	Orifice Meter Tube Fabrication Shop Inspection Program	PID Pressure Control Implementation and Tuning in Electronic Flow Computers	Determination of Hydrocarbon Dew Point in Natural Gas (Hour 1 of 2)	Determination of Hydrocarbon Dew Point in Natural Gas (Hour 2 of 2)	Helical Turbine Meters for Liquid Measurement			
209A	Measurement Economics	Liquid Meter Proving Techniques	Introduction to Uncertainty in Measurement	Measurement Management Systems	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)	Verification / Calibration of Devices Used in Liquid Measurement	Estimating Measurement Uncertainty for Gas Flow Meters (Repeat Class)	In-Situ (On-Site) Gas Meter Proving	Auditing Liquid Measurement	No Class	Guide to Troubleshooting Problems with Liquid Meters and Provers			
209B	Fundamentals of Liquid Measurement I - Physical Properties	Fundamentals of Liquid Measurement II - Static	Fundamentals of Liquid Measurement III - Dynamic	Liquid Measurement Station Design	On-line Flow Computers for Liquid Custody Transfer	Liquid Flow Provers	Statistical Control of Meter Factors - A Simplified Approach	Crude Oil Blending	Design, Operation and Maintenance of LACT Units	Operational Experience with Liquid Coriolis Meters	Troubleshooting Liquid Pipeline Losses and Gain (Hour 1 of 2)	Troubleshooting Liquid Pipeline Losses and Gain (Hour 2 of 2)	Calculation of Liquid Petroleum Quantities			
301A	Application of Turbine Meters in Liquid Measurement	Real-Time Electronic Gas Measurement	Viscosity and its Application in Liquid Hydrocarbon Measurement	Understanding Liquid Meter Proving and Proving Reports	Fundamentals of Sampling Natural Gas for BTU Determination	Understanding Hazardous Area Classifications	DOT Requirements for the Transportation of Sample Containers	Loading of Crude into Rail Tank Cars	Orifice Meters - Operation and Maintenance	No Class	Effects and Control of Pulsation in Gas Measurement	Flare Measurement Practices	Odorization in Natural Gas			
301B	Reducing Measurement Uncertainty in Process Gas Quality Measurements	Program for Training a Gas Measurement Technician	Displacement Meters for Liquid Measurement	Mass Measurement of Natural Gas Liquid Mixtures	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)	Simplifying Real-time and Historical (EFM) Data Collection for the Oil & Gas Industry	Ultrasonic Meters and Measurement Accuracy in Leak Detection	Uncertainty Based Transmitter Verification	Using Control Charts to Predict Failures of Measurement Devices	On-line Water Measurement Devices in Liquid Service	Pycnometer Installation, Operation and Calibration	Sampling Challenges Associated With Unconventional Gas Sources			
301C	Crude Quality - What is Involved and Why it's Important	The Evolution of Data Collection for Gas Measurement	Over Pressure Protection Methods	Equipment and Techniques used in Real Time Component Volume Calculations for Natural Gas Liquid Measurement	Certification and Performance Testing of Automatic Samplers	Advanced Application of Liquid Flow Computers	Flow Conditioning for Fluid Flow Measurement	Measurement Accuracy and Sources of Error in Tank Gauging	Techniques of Gas Composite Sampling	Transient Lighting Protection for Electronic Measurement Devices	SCADA Systems	No Class	Proving Liquid Meters with Microprocessor Based Pulse Outputs			
301D	Installation and Operation of Denistometers	Fundamentals of Liquid Turbine Meters	Chromatograph Applications and Problems from the User's Standpoint	Marine Crude Oil Terminal Measurement Systems	Measurement Methods for Liquid Storage Tanks	Determination of Lost and Unaccounted for Gas	Orifice Fittings and Meter Tubes	Communication Systems for Gas Measurement Data	Energy Measurement using Flow Computers and Chromatography	The Evolution of Technologies in H2O and H2S Measurement	Crude Oil Sampling for Custody Transfer Panel (Hour 1 of 2)	Crude Oil Sampling for Custody Transfer Panel (Hour 2 of 2)	Smart Transmitter Selection, Calibration and Installation			
302A	Gas Ultrasonic Diagnostics	Fundamentals of Gas Chromatography	Flare Measurement Using Advanced Ultrasonic Technology	Theory and Application of Pulse Interpolation to Prover Systems	Data Averaging	Design Considerations for Analyzer Enclosure Systems	Roles and Responsibilities of Witnessing a Prover Calibration	Application of Flow Computers for Gas Measurement and Control	Techniques of Gas Spot Sampling	Automated Truck Loading Systems	Chromatograph Maintenance and Troubleshooting	Calibration of Liquid Provers	Contaminant Accumulation Effect on Gas Ultrasonic Flow Meters			
302B	Basic Applications for Flow Computers and Telemetry Systems	Resolving Liquid Measurement Differences	Condition-Based Monitoring of Natural Gas Ultrasonic Measurement Facilities	Sampling and Analysis for RNG	Effects of Abnormal Conditions on Accuracy of Orifice Measurement (Repeat Class)	Proving Liquid Ultrasonic Meters	Ethernet for SCADA Systems	Measurement Data Analytics in the Age of Machine Learning	Operational Experience with Small Volume Provers	OPC Fundamentals	Gas Meter Selection	Leak Detection on Petroleum Pipelines	ESG and GHG Measurement and Impact of Federal and State Air Regulations on Measurement of Emissions and Flaring			
TWO HOUR CLASS																
HANDS-ON CLASS SESSION																
Tuesday, May 14th				Wednesday, May 15th				Thursday, May 16th								
Period	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 #																
205A	ZEGAZ Instruments - ZEGAZ Instruments Automated Chilled-Mirrors	Quorum Software - FLOWCAL Measurement Software (Hour 1 of 2)	Quorum Software - FLOWCAL Measurement Software (Hour 2 of 2)	Micro Motion - Micro Motion Gas Coriolis Meters	Mustang Sampling - Mustang Sampling-Pony Box and P-53 Units	TechnipFMC - TechnipFMC Coriolis Meters	Emerson - Rosemount Flame and Gas Detection Commissioning and Calibration	Endress+Hauser - Endress + Hauser Coriolis Flowmeter Best Practices	Quorum Software - PROVEit and PYCIT Meter Proving Software	Brodie International - Positive Displacement Meters	Omni - Omni Flow Computers (Hour 1 of 2) (Repeat Class)	Omni - Omni Flow Computers (Hour 2 of 2) (Repeat Class)	Schneider-Electric - Foxboro Production Vortex Meters			
205B	Emerson - Rosemount Tank Gauging	KGM Inc. - Mooney-Pilot Operated Regulators (Hour 1 of 2)	KGM Inc. - Mooney-Pilot Operated Regulators (Hour 2 of 2)	RJ Machining - Stabilizers and Manifolds Installation and Best Practices	Schneider Electric - RealFlo Software For Scadaflow Flow Computers (Hour 1 of 2)	Schneider Electric - RealFlo Software For Scadaflow Flow Computers (Hour 2 of 2)	No Class -	Rosemount Analytical - Gas Chromatograph Configuration (Hour 1 of 2)	Rosemount Analytical - Gas Chromatograph Configuration (Hour 2 of 2)	KGM Inc. - Dresser Rotary Meters	Micro Motion - Micro Motion Liquid Coriolis Meters (Hour 1 of 2)	Micro Motion - Micro Motion Liquid Coriolis Meters (Hour 2 of 2)	YZ Systems - YZ Odorization			
206A	Schneider Electric - Accutech Wireless Instrumentation	ABB Totalflow - NGC/PCC 1000 Gas Chromatograph (Hour 1 of 2)	ABB Totalflow - NGC/PCC 1000 Gas Chromatograph (Hour 2 of 2)	Quorum Software - TESTit Meter Calibration Software	Thermo Scientific - AuroFLEX Flow Computer (Hour 1 of 2)	Thermo Scientific - AuroFLEX Flow Computer (Hour 2 of 2)	A+ Corporation - Genie Sample Probes and Membrane Separators	ABB Totalflow - ABB Xseries Flow Computers (Hour 1 of 2)	ABB Totalflow - ABB Xseries Flow Computers (Hour 2 of 2)	Daniel - Daniel Liquid Turbine Meters	Fisher Controls - Fisher Control High Pressure Regulators	TMCo - SureShot Orifice Fitting Operation and Maintenance	Ametek - Ametek Dead Weight Tester			
206B	Mustang Sampling - Mustang Sampling-OM300 Process Analyzer	Emerson - ROC200L Remote Telemetry Units for Liquids (Hour 1 of 2)	Emerson - ROC200L Remote Telemetry Units for Liquids (Hour 2 of 2)	PGI - PGI Interceptor Composite Sampler O&M	Omni - Omni Flow Computers (Hour 1 of 2)	Omni - Omni Flow Computers (Hour 2 of 2)	Emerson - Using Emerson's FB3000 RTU for Large & Distributed Architectures	TechnipFMC - TechnipFMC-Invalco BSSW Monitor	YZ Systems - YZ Natural Gas Sampling O&M	TechnipFMC - TechnipFMC Liquid Displacement Meters	TechnipFMC - ACCULOAD Family Preset Controller (Hour 1 of 2)	TechnipFMC - ACCULOAD Family Preset Controller (Hour 2 of 2)	TechnipFMC - TechnipFMC-Invalco BSSW Monitor (Repeat Class)			
207A	No Class -	CRT Services - Spirit IT Flow Computers (Hour 1 of 2)	CRT Services - Spirit IT Flow Computers (Hour 2 of 2)	Flexim - Flexim Clamp On Ultrasonic Meters	Emerson - Rosemount Ultrasonic Meters (Hour 1 of 2)	Emerson - Rosemount Ultrasonic Meters (Hour 2 of 2)	Emerson - Rosemount Tank Gauging (Repeat Class)	SICK, Inc. - FLOW/SIC500 Ultrasonic Meter (Hour 1 of 2)	SICK, Inc. - FLOW/SIC500 Ultrasonic Meter (Hour 2 of 2)	A+ Corporation - ACES Sample System Design, Installation and Maintenance	Endress+Hauser - TDLAS H2O Analysis (Hour 1 of 2)	Endress+Hauser - TDLAS H2O Analysis (Hour 2 of 2)	Temposonic - Automatic Tank Gauging Magnetostriuctive Technology			
207B	Rosemount - Rosemount Smart Transmitters	Circle B - Orifice Tube and Fitting Inspection (Hour 1 of 2)	Circle B - Orifice Tube and Fitting Inspection (Hour 2 of 2)	TechnipFMC - TechnipFMC Turbine Meter Diagnostic Tool	Emerson - Emerson FB Series Flow Computers and FB3000RTU (Hour 1 of 2)	Emerson - Emerson FB Series Flow Computers and FB3000RTU (Hour 2 of 2)	Flow MD - Witnessing Prover Calibrations (Gravimetric Method)	Flow MD - Flow MD Small Volume Provers (Hour 1 of 2)	Flow MD - Flow MD Small Volume Provers (Hour 2 of 2)	Vinson Process - Fisher Control Valves	SICK, Inc. - SICK Gas Ultrasonic Meters (Hour 1 of 2)	SICK, Inc. - SICK Gas Ultrasonic Meters (Hour 2 of 2)	Barracuda Measurement Solutions - ModuTex Liquid Flow Computer			
TWO HOUR HANDS-ON CLASSES				TWO HOUR HANDS-ON CLASSES				TWO HOUR HANDS-ON CLASSES								
Ballroom A Gas Fundamentals Track (Requires Additional Registration Fee)																