

Class Level		ISHM 2022 CLASS SCHEDULE																																
Introduction & 1		Presentation Class Session												Hands-On Class Session																				
Tuesdays, May 10th		Wednesdays, May 11th												Thursdays, May 12th																				
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	3.4	3.5	3.6	3.7	3.8	3.9	3.10	3.11	3.12	3.13	3.14	3.15									
Room #	11:10 AM to 12:00 PM	12:00 PM to 2:00 PM	2:00 PM to 3:10 PM	4:10 PM to 6:00 PM	8:00 AM to 9:50 AM	9:50 AM to 11:40 AM	10:50 AM to 12:40 PM	1:00 PM to 2:50 PM	2:50 PM to 4:40 PM	4:40 PM to 6:30 PM	8:00 AM to 9:50 AM	9:50 AM to 11:40 AM	10:50 AM to 12:40 PM	1:00 PM to 2:50 PM	2:50 PM to 4:40 PM	4:40 PM to 6:30 PM	8:00 AM to 9:50 AM	9:50 AM to 11:40 AM	10:50 AM to 12:40 PM	1:00 PM to 2:50 PM	2:50 PM to 4:40 PM	4:40 PM to 6:30 PM	8:00 AM to 9:50 AM	9:50 AM to 11:40 AM	10:50 AM to 12:40 PM									
Classroom Lectures	201	Effects of Petroleum Properties on Pipeline Measurement	Using Control Charts to Predict Failures of Measurement Devices	LPG Terminal Operations and Measurement	Evaporation Loss Measurement from Storage Tanks	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	Chromatographic Analysis of Natural Gas Liquids	New Technologies in S&W Measurement	Sample Conditioning & Contaminant Removal for Vapor Vapor Determination	Measurement of Cryogenic LNG	SCADA and Field Data Capture in the Cloud																				
	202	Water Vapor Effects on Natural Gas Quality and Natural Gas Measurement	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	Hydrocarbon Dew Point Effects on Gas Flow Measurement	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 Power Detector Switches	Offshore Liquid IPROD Measurement Systems	Identifying and Eliminating Effects of Induced Signals on Measurement System Electronics																				
	203	Coring with Changing Flow Requirements at Existing Meter Stations	Energy Measurement Using Ultrasonic Meters and Gas Chromatography	The "Not So Small" Small Volume Prover	API MPMS Chapter 22.2 Testing Protocol for Differential Pressure Flow Measurement Devices	Advanced Diagnostic Measurements and Verification with Coriolis Flow meters	LACT Unit Proving - The Role of the Witness	Fundamentals of Gas Turbine Meters	Ordnance in Natural Gas	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																				
	204	Data Validation - Requirements of an EGM Editor	BTU Determination of Natural Gas Using a Portable Chromatograph	Conventional Measurement in Unconventional Plays	The Measurement Data Handling Process Now and in the Future	Crude Oil Gathering - Gauging Testing and Train Measurements Alternatives (hour 1 of 2)	Crude Oil Gathering - Gauging Testing and Train Measurements Alternatives (hour 2 of 2)	Discipline of Sizing SVP for All Metering Technologies (New)	Challenges in Allocation Measurement Panel (hour 1 of 2)	Challenges in Allocation Measurement Panel (hour 2 of 2)	Mass Meters for Liquid Measurement	Operation of Liquid Ultrasonic Flow Meters (Panel)	Improvement of Historic Proving Practice through API MPMS Chapter 13 Statistical Methods (New)	Effective Use of Deadweight Testers																				
	202B	Office Meter Tube Fabrication Inspection Program	Gas Meter Selection	Leak Detection on Petroleum Pipelines	Impact of Federal and State Air Permitting Regulations on Measurement	Basic Applications for Flow Computers and Telemetry Systems	OPC Fundamentals	Condition-Based Monitoring of Natural Gas Electronic Measurement Facilities	Program for Training a Gas Measurement Technician	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	Techniques of Gas Composite Sampling																				
	104	Auditing Gas Measurement and Accounting Systems	Refined Product Sampling Systems	Wireless Economics 101	No Class	LNG Measurement by Static and Dynamic Methodologies Panel (Hour 1 of 2)	LNG Measurement by Static and Dynamic Methodologies Panel (Hour 2 of 2)	Estimating Measurement Uncertainty for Gas Flow Meters (Repeat Class)	Overview of Changes to API 2350 Tank Overfill Protection	Measurement Policies and Procedures - Development and Implementation Considerations	Establishing a Development Program for Hydrocarbon Measurement Staff	Improving Flow Measurements with Improved Calibration & Data Handling Procedures	Manufactured Meter Pulses - An Exploration	Field and Laboratory Testing of Sediment and Water in Crude Oil																				
	105	Cone Meters for Liquid and Gas Measurement	The Measurement Data Handling Process Now and in the Future	Fluid Volume Calculations	Cyber Security	Office Meter Diagnostic Systems	Preparing a Prover for Watertrap Calibration	Master meter prover certifications per API MPMS 4.3.3	Effects of Atmospheric Pressure on Natural Gas	Determination of Trace Oxygen in Natural Gas	The Uncertainty of a Watertrap Calibration vs. Gravimetric Calibration on Small Volume Provers	Roles and Responsibilities of Witnessing a Prover Calibration	Application in Liquid Measurement Using Clamp-On Ultrasonic Technology	Volumetric Measurement of Liquid Petroleum Gas																				
	106	Uncertainties within Certification Methods and Mitigations	Measurement Station Inspection Documentation Program and Guide	Basic Electronics for the Field Technician	Liquid Tank Level Interface Measurement	Gas Ultrasonic Diagnostics	Liquid Measurement Field Surveys	Interface Definition in Liquid Pipelines	Measurement and Regulation Operation of a LDC	Methods for Certifying Measurement Equipment	PID Control Implementation in Electronic Flow Computers (New)	Update on API AGA, GPA and ASTM Standards - Measurement Activities	Spread Spectrum Radio Technology for Gas Measurement	Wet Gas Measurement																				
	301A	Helical Turbine Meters for Liquid Measurement	Office Meters - Operation and Maintenance	Flare Measurement Practices	API 11.3.4 Miscellaneous Hydrocarbon Properties - Ethanol Density and VCF	Application of Turbine Meters in Liquid Measurement	Real-Time Electronic Gas Measurement	Viscosity and Its Application in Liquid Hydrocarbon Measurement	Introduction to LNG Sampling for Energy and Methane Number Determination (New)	Fundamentals of Sampling Natural Gas for BTU Determination	Understanding Hazardous Area Classifications	DOT Requirements for the Transportation of Simple Composites	Loading of Crude into Rail Tank Cars	Effects and Control of Pulsation in Gas Measurement																				
	301B	Meter Factor Transferability for Coriolis Mass Flow Meters	On-line Water Measurement Devices in Liquid Service	Pycnometer Installation, Operation and Calibration	Sampling Challenges Associated with Unconventional Gas Sources	Fundamentals and Measurement at LNG Peak Shaving Plants & Truck Loading Facilities (New)	Resolving Liquid Measurement Differences	Displacement Meters for Liquid Measurement	Mass Measurement of Natural Gas Liquid Mixtures	Benefits around Timely Analysis of Measurement Data	Smoothing Real-time and Historical (RTM) Data Collection for the Oil & Gas Industry	Ultrasonic Meters and Measurement Accuracy in Leak Detection	Office Meters for Liquid Measurement																					
	301C	The Evolution of Data Collection for Gas Measurement	SCADA Systems	RF (Radio Frequency) Fundamentals of IoT	Proving Liquid Meters with Microprocessor Based Pulse Outputs	Crude Quality - What is Involved and Why it's Important	Transient Lightning Protection for Electronic Measurement Devices	Application of Denominators to Liquid Measurement	Over Pressure Protection Methods	Certification and Performance Testing of Automatic Samplers (New)	Advanced Application of Liquid Flow Computers	Flow Conditioning for Fluid Flow Measurement	Measurement Accuracy and Sources of Error in Tank Gauging	Operational Experience with Small Volume Provers																				
	301D	No Class	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	Installation and Operation of Denominators	Determination of Lost and Unaccounted for Gas	Chromatograph Applications and Problems from the User's Standpoint	Marine Crude Oil Terminal Measurement	Measurement Methods for Liquid Storage Tanks	Fundamentals of Liquid Turbine Meters	Office Filling and Meter Tubes	Communication Systems for Gas Measurement Data	Energy Measurement Using Flow Computers and Chromatography																				
	302A	Auditing Electronic Gas Measurement per API Chapter 21.1	Chromatograph Maintenance and Troubleshooting	Calibration of Liquid Provers	Containment Accumulation Effects on Gas Ultrasonic Flow Meters	Sampling and Conditioning of Natural Gas Containing Ethanol and Liquids	Fundamentals of Gas Chromatography	Design Considerations for Analyzer Enclosure Systems	Theory and Application of Pulse Interpretation in Prover Systems	Data Averaging	Flare Measurement Using Advanced Ultrasonic Technology	Automated Truck Loading Systems	Application of Flow Computers for Gas Measurement and Control	Techniques of Gas Spot Sampling																				
	208A	Fundamentals of Gas Measurement	Fundamentals of Gas Measurement	Fundamentals of Gas Measurement	Allocation Measurement 101- Fundamentals of Allocations	Proving Coriolis Flow Meters Panel (Hour 1 of 2)	Proving Coriolis Flow Meters Panel (Hour 2 of 2)	Effects of Abnormal Conditions on Accuracy of Office Measurement	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	Guide to Troubleshooting Problems with Liquid Meters and Provers	Overview of the new API Standard Chapter 9.4 Continuous Density Measurement (Panel)																				
	208B	Prover Handling & Maintenance of Natural Gas Calibration Cylinders	New Ideas in Measurement (Hour 1 of 2)	New Ideas in Measurement (Hour 2 of 2)	Effects of Abnormal Conditions on Accuracy of Office Measurement (Repeat Class)	Review & Discussion of BLM Orders 3173, 3174, & 3175	Review & Discussion of BLM Orders 3173, 3174, & 3175	Crude Oil Blending	Witnessing Office Meter Verification / Calibration	Auditing Gas Laboratories	Isolation and Operation Errors in 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)	The Role of BLM in Oil and Gas Measurement																				
	209A	Measurement Economics	Introduction to Uncertainty in Measurement	Liquid Meter Proving Techniques	Engineering Ethics	Fundamentals of Liquid Measurement I - Physical Properties	Fundamentals of Liquid Measurement II - Dynamic	Fundamentals of Liquid Measurement III - Chromatography	Measurement Management Systems	Verification / Calibration of Devices Used in Liquid Measurement	Estimating Measurement Uncertainty for Gas Flow Meters	In-Situ (On-Site) Gas Meter Proving	Introduction to Gas Quality Using Spectroscopy	Design, Operation and Maintenance of LACT Units																				
	209B	Fundamentals of Liquid Measurement I - Physical Properties	Fundamentals of Liquid Measurement II - Dynamic	Fundamentals of Liquid Measurement III - Chromatography	Calculation of Liquid Petroleum Quantities	Liquid Measurement Station Design	On-line Flow Computers for Liquid Custody Transfer	Liquid Flow Provers	Understanding Liquid Meter Proving and Proving Reports	Statistical Control of Meter Factors - A Simplified Approach	Auditing Liquid Measurement	Troubleshooting Liquid Pipeline Losses and Gain (Hour 1 of 2)	Troubleshooting Liquid Pipeline Losses and Gain (Hour 2 of 2)	Operational Experience with Liquid Coriolis Meters																				
	TWO HOUR CLASS		LIQUID FUNDAMENTALS SERIES												GAS FUNDAMENTALS SERIES						NEW CLASS FOR 2022													
	Hands-On Class Session		Tuesdays, May 10th												Wednesdays, May 11th										Thursdays, May 12th									
	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	3.4	3.5	3.6	3.7	3.8	3.9	3.10	3.11	3.12	3.13	3.14	3.15								
Room #	891	891	892	897	901	903	904	901	901	901	902	901	901	901	901	901	901	901	901	901	901	901	901	901	901	901								
205A	Bodine International - Positive Displacement Meters	Omnix - Omnix Flow Computers (Hour 1 of 2)	Omnix - Omnix Flow Computers (Hour 2 of 2)	Schneider-Electric - Fossilion Production Vortex Meters	Quinn Software - FLOWCAL Measurement Software (Hour 1 of 2)	Quinn Software - FLOWCAL Measurement Software (Hour 2 of 2)	Mico Motion - Mico Motion Liquid Coriolis Meters	Mico Motion - Mico Motion Gas Coriolis Meters	TechProFAC - F&M Liquid Positive Displacement Meters	TechProFAC - TechProFAC Coriolis Meters	Quinn Software - ProverIT and PycIT Meter Proving Software	Endress-Hausser - Endress + Hauser Schneider Electric - Acobotch Wireless Instrumentation																						
205B	YZ Systems - YZ Ordnance	Daniel - Daniel Office Filling & Tube Inspection (Hour 1 of 2)	Daniel - Daniel Office Filling & Tube Inspection (Hour 2 of 2)	KGM Inc. - Dresser Rotary Meters	Mooney-Pilot Operated Regulators	Mooney-Pilot Operated Regulators	Emerson - Rosemount Tank Gauging	Schneider Electric - Health Software For Scatpax Flow Computers (Hour 1 of 2)	Schneider Electric - Health Software For Scatpax Flow Computers (Hour 2 of 2)	Schneider Electric - SCADA/PLC RemoteConnect	Rosemount Analytical Chemistry Gas Chromatograph Configuration (Hour 1 of 2)	Rosemount Analytical Chemistry Gas Chromatograph Configuration (Hour 2 of 2)	Daniel - Senior Office Filling Operations & Maintenance																					
206A	Daniel - Daniel Liquid Turbine Meters	Fisher Controls - Fisher Control High Pressure Provers	Endress + Hauser - Endress+Hauser Pressure Best Practices	Ametek - Ametek Dead Weight Tester	ABB Totalflow - NGC/PC 1000 Gas Chromatograph (Hour 1 of 2)	ABB Totalflow - NGC/PC 1000 Gas Chromatograph (Hour 2 of 2)	Emerson - Rosemount Flame and Gas Detector Commissioning and Calibration	Thermo Scientific - AutoFLEX Flow Computer (Hour 1 of 2)	Thermo Scientific - AutoFLEX Flow Computer (Hour 2 of 2)	Quinn Software - TsetIT Meter Calibration Software	ABB Totalflow - ABB Xseries Flow Computers (Hour 1 of 2)	ABB Totalflow - ABB Xseries Flow Computers (Hour 2 of 2)	A+ Corporation - Geste Sample Probes and Membrane Separators																					
206B	Mustang Sampling - Mustang Sampling - Flow Box and API 5.6 Units (New)	TechProFAC - ACCULOAD Family Prover Controller (Hour 1 of 2)	TechProFAC - ACCULOAD Family Prover Controller (Hour 2 of 2)	TechProFAC - TechProFAC-Invaio B&B Meter	Emerson - Emerson FB3000 RTU & FB1000/2000 Flow Computers Gas and Liquid (Hour 1 of 2)	Emerson - Emerson FB3000 RTU & FB1000/2000 Flow Computers Gas and Liquid (Hour 2 of 2)	Mustang Sampling - Mustang Sampling - OMA200 Process Analyzer (New)	Omnix - Omnix Flow Computers (Hour 1 of 2) (Repeat Class)	Omnix - Omnix Flow Computers (Hour 2 of 2) (Repeat Class)	PGI - PGI Interceptor Composite Sample OIM	Emerson - Emerson FB3000 RTU Programming using FBTool	TechProFAC - TechProFAC-Invaio B&B Meter (Repeat Class)	YZ Systems - YZ Natural Gas Sampler OIM																					
207A	A+ Corporation - ACES Sample System Design, Installation and Maintenance	Endress+Hauser - Tunable Diode Laser Moisture Analyzers (Hour 1 of 2)	Endress+Hauser - Tunable Diode Laser Moisture Analyzers (Hour 2 of 2)	Temposonic - Automatic Tank Gauging Magnetostatic Technology	Split IT - Split IT Flow Computers (Hour 1 of 2)	Split IT - Split IT Flow Computers (Hour 2 of 2)	Sensa - Sensa Crude Oil Sampling	Emerson - Rosemount Ultrasonic Meters (Hour 1 of 2)	Emerson - Rosemount Ultrasonic Meters (Hour 2 of 2)	Fleam - Fleam Clamp On Ultrasonic Meters	SICK, Inc. - FLOWSiC500 Ultrasonic Meter (Hour 1 of 2)	SICK, Inc. - FLOWSiC500 Ultrasonic Meter (Hour 2 of 2)	Emerson - Rosemount Tank Gauging (Repeat Class)																					
207B	Fisher - Fisher Control Valves	SICK, Inc. - SICK Gas Ultrasonic Meters (Hour 1 of 2)	SICK, Inc. - SICK Gas Ultrasonic Meters (Hour 2 of 2)	Barnouds Measurement Solutions - ModMAX Liquid Flow Computer	Rosemount - Rosemount Smart Transmitters	ZEGAZ Instruments - ZEGAZ Instruments Automated Oilfield Meters (New)	TechProFAC - ACCULet Liquid Turbine Meters	Emerson - Emerson ROC800L RTUs for Liquids Measurement (Hour 1 of 2)	Emerson - Emerson ROC800L RTUs for Liquids Measurement (Hour 2 of 2)	Siemens - Siemens Clamp-on Ultrasonic Meter	Flow MD - Flow MD Small Volume Provers (Hour 1 of 2)	Flow MD - Flow MD Small Volume Provers (Hour 2 of 2)	Flow MD - (Witnessing Prover Calibration) (Gravimetric Method)																					
TWO HOUR HANDS ON CLASSES		TWO HOUR HANDS ON CLASSES												TWO HOUR HANDS ON CLASSES						TWO HOUR HANDS ON CLASSES														
Gas Fundamentals Track (Requires Additional Registration Fee)																																		