GTA Liquids Training Curriculum Map

This map is intended to provide guidance on how GTA courses can be implemented. It is only a suggestion to get you started, so you may implement them in any order or combination that suites your needs. They are grouped in 3 levels: Basic, Intermediate, and Advanced. The first column in each level provides a grouping order to suggest an order that curses might be taken. The second column identifies the WBT (web-based training) Certificate Program name for WBTs or a Topic name for ILTs (instructor-led training) or SBs (skill builders, or on-the-job training). The final column is a list of the content in the order they are suggested to be taken.

Basic

Courses Highlighted Green are New
Courses Highlighted Red have been Retired

Order **0=** Any Order **a, b, c=** Order within group	**WBT Certificate Program or ILT/SB Topic**	**Content** ILT = Instructor Led Training SB = Skill Builders (On-the-Job Training) All others are WBTs
1a	Basic Liquid Measurement Technician WBT Certificate	• Drawing Sets and Print Reading • History of Liquid Flow Measurement • Units of Liquid Measurement – Pressure and Temperature • Units in Liquid Measurement – Volume, Density and Mass • Chemical Properties of Hydrocarbon Liquids • Introduction to Liquid Flow Measurement replaced Introduction to Liquid Measurement in 2023 • Introduction to Liquid Measurement Components • Introduction to Liquid Flow Meters • Meter Station Drawings • Introduction to Instrumentation • Introduction to SCADA
1b	Liquid Flow Measurement Fundamentals	• SB: Test Equipment Usage • ILT: Basic Measurement • SB: Secondary Element Verification and Calibration
2a	Basic Liquid Meters WBT Certificate	• Coriolis Flowmeter Definitions and Components for Liquids • Coriolis Flowmeter Theory of Operation for Liquids
2b	Orifice Meters	• SB: Orifice Meter Operation
3a	Basic Liquid Meters WBT Certificate	• Introduction to Ultrasonic Meters

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		• Ultrasonic Meters Maintenance and Troubleshooting
3b	Coriolis Meters	• SB: Coriolis Meter Maintenance
0	Basic Operations and Safety	• ILT: Drawing Sets and Print Reading • ILT: Fire and Gas Detection Systems
0	Basic Electronics WBT Certificate	• Basic Electronics: Power Supplies, Rectifier Circuits, and Power Supply Filters • Basic Electronics: Power Supplies, Voltage Regulators and Integrated Circuits • Basic Electronics: Switching Power Supplies • Basic Electronics: Bipolar Transistor Fundamentals • Basic Electronics: Diodes • Basic Electronics: Operational Amplifiers • Basic Electronics: Special Semiconductor Devices
0	Electric Power Fundamentals WBT Certificate	• Electric Power Fundamentals: Electrical Safety • Electric Power Fundamentals: Basic Electrical Theory • Electric Power Fundamentals: Test Equipment • Electric Power Fundamentals: AC Generation • Electric Power Fundamentals: Grounding Practices • Electric Power Fundamentals: AC and DC Motors • Electric Power Fundamentals: Controlling Motor Starting • Electric Power Fundamentals: Motor Control Fundamentals • Electric Power Fundamentals: RLC Circuits and Transformers
0	Electrical Systems	• ILT: Electrical Power Fundamentals • SB: Electrical Systems
0	Applied Physics WBT Certificate	• Applied Physics: An Introduction • Applied Physics: Dynamics • Applied Physics: Nature of Matter • Applied Physics: Energy, work and Power • Applied Physics: Heat and Heat Transfer • Applied Physics: Mechanics
0	Math WBT Certificate	• Industrial Math: Whole Numbers and Fractions • Industrial Math: Decimals, Percentages, and Square Roots • Industrial Math: Algebraic Operations, and Equations

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		• Industrial Math: Exponents, Radicals, and Scientific Notation • Industrial Math: Geometry 1 • Industrial Math: Geometry 2 and Trigonometry • Industrial Math: Statistics and Uncertainty Principles

Intermediate

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Order **0=** Any Order **a, b, c=** Order within group	**WBT Certificate Program or ILT/SB Topic**	**Content** ILT = Instructor Led Training SB = Skill Builders (On-the-Job Training) All others are WBTs
4a	Introduction to Electrical and Instrumentation WBT Certificate	• Introduction to Electrical Concepts for Measurement • Signal Types • Instrumentation - Field Devices, Flow Computers and PLCs • Wiring, Loops, Diagrams and Local Power Distribution • Multimeters, Process Calibrators & HART Communicators
4a	Intermediate Liquid Measurement Technician WBT Certificate	• Coriolis Flowmeter Design for Liquids • Coriolis Flowmeter Installation/Setup for Liquids • Basics of Gas Chromatography Part 1 • Basics of Gas Chromatography Part 2
4b	Chromatographs	• ILT: Intro to Gas Chromatography • SB: Gas Chromatography
5a	Intermediate Liquid Measurement Technician WBT Certificate	• Gas Quality Instrumentation
5b	Product Quality Measurement	• SB: Remote Terminal Unit (RTU) Configuration

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Advanced

Courses Highlighted Green are New
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Order **0=** Any Order **a, b, c=** Order within group	**WBT Certificate Program or ILT/SB Topic**	**Content** ILT = Instructor Led Training SB = Skill Builders (On-the-Job Training) All others are WBTs
6a	Advanced Liquid Measurement Technician WBT Certificate	• Communication and Protocols 1 • Communication and Protocols 2 • Instrumentation Systems
6b	SCADA Instrumentation and Control	• ILT: Supervisory Control and Data Acquisition (SCADA) • ILT: Basic Programmable Logic Controllers (PLCs) • ILT: Control Systems Process and Instrumentation Diagrams (PID) Control • ILT: Instrumentation Systems • ILT: Basic Instruments and Control Loops
7a	Advanced Liquid Measurement Technician WBT Certificate	• Basics of Control Valves
7b	Regulators and Valves	• ILT: Basics of Control Valves • ILT: Basics of Pressure Regulators • SB: Bypassing Regulators • SB: Regulator and Relief Valve Inspection
8	Overpressure Protection (OPP)	• ILT: Basics of Overpressure Protection • ILT: Department of Transportation (DOT) Considerations
9a	Advanced Liquid Measurement Technician WBT Certificate	• Fluid Mechanics Fundamentals
9b	Fluid Mechanics	• ILT: Fluid Mechanics Fundamentals
10	Measurement Equipment Installation	• SB: Tube Bending and Manifold Installation • SB: Tube Bending Guide
11	Advanced Liquid Measurement Technician WBT Certificate	• Coriolis Liquid Flowmeter Proving and Troubleshooting • Basic Troubleshooting 1 • Basic Troubleshooting 2

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