MECH 104

● ● ● Advanced 60 hours 4 modules · 28 lessons

Valves, Actuators, Process Equipment & Systems

Every valve type and actuator, the mechanical heart of treatment processes, and the PM programs and troubleshooting that keep distribution and collection systems running.

60	4	28	4,000	140	12
HOURS OF TRAINING	MODULES	LESSONS	STUDY CARDS	SCENARIOS	3D SIMULATORS

COURSE OBJECTIVES

By the end of this course you will be able to:

1. Select gate, globe, butterfly, ball, check, plug, knife, diaphragm, pinch and pressure-reducing valves for the duty.
2. Explain control-valve Cv, characteristics and installed gain.
3. Size, set up and troubleshoot electric, pneumatic and hydraulic valve and gate actuators including torque and limit settings.
4. Maintain bar screens, grit systems, clarifier drives, blowers, mixers and dewatering equipment.
5. Manage air release, vacuum and surge-protection devices on force mains.
6. Calculate thrust at bends and design restraint.
7. Build a PM program and troubleshoot pumps and systems from symptoms to root cause.

WHAT YOU WILL LEARN

Valve selection
Loss coefficients, duty, seating and maintenance of every common valve.

Actuators
Torque and limit switches, positioners, fail position and slide-gate thrust.

Process equipment
Screens, grit, clarifier drives, blowers and surge.

Collection & distribution
Air valves, water hammer, thrust restraint and force mains.

PM programs
Task lists, intervals, spares and CMMS data.

Troubleshooting
A repeatable method from symptom to cause to fix.

MAJOR TOPICS COVERED

Module 7	Valves: All Types	7 lessons
Module 8	Valve & Gate Actuators	7 lessons
Module 9	Treatment Process Mechanical Equipment	7 lessons
Module 10	Distribution & Collection Systems Mechanical, PM Programs & Troubleshooting	7 lessons

COURSE HIGHLIGHTS

- **60 hours** of structured, self-paced instruction with active-time tracking.
- **12 interactive 3D simulators** — rotate, explode and cut away real equipment, then change the controls and watch the numbers respond.
- **140 field scenarios** with background, decision points and worked answers.
- **4,000 study cards**, 28 printable checklists and hands-on calculators.
- **Module quizzes** and a completion certificate with a verification code.

WHO IT'S FOR

Experienced mechanics, lead operators and maintenance supervisors at water and wastewater facilities and utilities.

BEFORE YOU START

MECH 101–103 recommended.

WHERE TO NEXT

IC 101 or ELEC 101 (cross-training).

Start learning Create a free account at tryetech.com, open **Mechanical Maintenance** and begin with Module 7.