MECH 102

● ● ○ Intermediate 30 hours 2 modules · 14 lessons

Pumps: Centrifugal, Positive Displacement & Metering

How pumps move water, sludge and chemicals — and how to select, start, troubleshoot and rebuild them.

30	2	14	2,000	70	6
HOURS OF TRAINING	MODULES	LESSONS	STUDY CARDS	SCENARIOS	3D SIMULATORS

COURSE OBJECTIVES

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

1. Read pump curves and find the operating point against the system curve and BEP.
2. Apply the affinity laws to speed changes and explain NPSH, cavitation and vortexing.
3. Identify impeller types, wear rings, volutes and suction-piping problems.
4. Compare vertical turbine, submersible and end-suction designs and set depths and clearances.
5. Explain how positive-displacement pumps (progressive cavity, diaphragm, piston, gear) differ from centrifugal pumps and why they need relief protection.
6. Calibrate chemical metering pumps and convert drawdown readings to dose.
7. Troubleshoot pump faults from gauge, flow and amp readings.

WHAT YOU WILL LEARN

Pump curves & operating point
Head, flow, efficiency and where a pump really runs.

Cavitation & NPSH
Margins, causes and cures on the suction side.

Pump construction
Impellers, wear rings, shafts, casings and clearances.

Sludge & chemical pumps
Progressive cavity, diaphragm, piston and peristaltic designs.

Metering & calibration
Drawdown tests, stroke and speed adjustment, dose math.

Fault finding
Reading a pump station from the gauges and the amp clamp.

MAJOR TOPICS COVERED

Module 3	Centrifugal Pumps: Small & Large	7 lessons
Module 4	Positive Displacement, Sludge & Chemical Metering Pumps	7 lessons

COURSE HIGHLIGHTS

- **30 hours** of structured, self-paced instruction with active-time tracking.
- **6 interactive 3D simulators** — rotate, explode and cut away real equipment, then change the controls and watch the numbers respond.
- **70 field scenarios** with background, decision points and worked answers.
- **2,000 study cards**, 14 printable checklists and hands-on calculators.
- **Module quizzes** and a completion certificate with a verification code.

WHO IT'S FOR

Mechanics and operators who install, maintain and troubleshoot pumps from small chemical feeders to large high-service units.

BEFORE YOU START

MECH 101 recommended (safety, fundamentals and hydraulics).

WHERE TO NEXT

MECH 103 — Seals, Bearings, Alignment & Vibration

Start learning Create a free account at tryetech.com, open **Mechanical Maintenance** and begin with Module 3.