National Center for Supply Chain Technology Education
RESOURCES FOR EDUCATION & INDUSTRY

Electro Mechanical Occupational Profile
(from O*Net: 17-3024.00)

17-3024.00 - Electro-Mechanical Technicians

Operate, test, maintain, or calibrate unmanned, automated, servo-mechanical, or electromechanical equipment. May operate unmanned submarines, aircraft, or other equipment at worksites, such as oil rigs, deep ocean exploration, or hazardous waste removal. May assist engineers in testing and designing robotics equipment.

Sample of reported job titles: Electro-Mechanical Technician (E/M Technician), Electronic Technician, Test Technician, Tester, Mechanical Technician, Product Test Specialist, Electro-Mechanic, Electronic Instrument Technician, Laboratory Technician, Maintenance Technician

Tasks

- Test performance of electromechanical assemblies, using test instruments such as oscilloscopes, electronic voltmeters, or bridges.
- Read blueprints, schematics, diagrams, or technical orders to determine methods and sequences of assembly.
- Install electrical or electronic parts and hardware in housings or assemblies, using soldering equipment and hand tools.
- Align, fit, or assemble component parts, using hand or power tools, fixtures, templates, or microscopes.
- Inspect parts for surface defects.
- Analyze and record test results, and prepare written testing documentation.
- Verify part dimensions or clearances to ensure conformance to specifications, using precision measuring instruments.
- Operate metalworking machines to fabricate housings, jigs, fittings, or fixtures.
- Repair, rework, or calibrate hydraulic or pneumatic assemblies or systems to meet operational specifications or tolerances.
- Train others to install, use, or maintain robots.

Knowledge

Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
Mechanical — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.

Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services.
Production and Processing — Knowledge of raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods.
English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
Customer and Personal Service — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.

Skills

Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.
Quality Control Analysis — Conducting tests and inspections of products, services, or processes to evaluate quality or performance.
Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
Repairing — Repairing machines or systems using the needed tools.

Troubleshooting — Determining causes of operating errors and deciding what to do about it.

Active Learning — Understanding the implications of new information for both current and future problem-solving and decision-making.
Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Installation — Installing equipment, machines, wiring, or programs to meet specifications.

Operation and Control — Controlling operations of equipment or systems.

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