

MAINTENANCE TECHNICIAN

KNOWLEDGE & SKILLS



By Micro Nano Technology Education Center in partnership with Siemens and Innovate In America



MNT-EC MAINTENANCE TECHNICIAN

TECHNICIAN KSA'S 2024

Matthias Pleil & Scot McLemore – Based on review by the MNT-EC BILT Team

- S-1 Given an equipment training device and a digital multimeter, measure voltage, burrent and resistance.
- S-2 Given series and parallel circuits schematics, analyze series and parallel circuits containing resistors, inductors and capacitance.
- S-3 Given a digital circuit with schematic, frequency counter (or equivalent) and logic analyzer, analyze digital circuit.
- S-4 Given an analog circuit with schematic and an oscilloscope, analyze analog circuit.
- S-5 Given a variety of sensors and transducers, analyze devices for proper operation and calibration.
- S-6 Given A/D and D/A converters, analyze devices for proper operation and calibration.
- S-7 Given a set of electrical/electronic performance scenarios, recognize electrical/electronic malfunction indications.
- S-8 Given electrical/electronic equipment training devices, PM procedure, basic hand toolsand replacement parts kit, conduct routine preventive maintenance.
- S-9 Given an equipment training device with an electrical fault, appropriate test equipmment, wiring diagrams and schematics, troubleshoot root-cause of electronic failures.
- S-10 Given line schematic, wiring diagram and a set of conditions, interpret electrical/electronic diagrams.
- S-11 Given an equipment training device, electronic sensors, motor controllers, connectors, relays, transducers, circuit board components, servo amplifier, electrical cables, fiber optic cables, necessary tools, wiring diagrams, schematics, appropriate instructions and minimal assistance, replace electrical components according to specifications.



Northwest Vista Community College students look at samples in a scanning electron microscope.

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- S-12 Given an equipment training device, electronic sensors, motor control circuits, cables, connectors, relays, transducers, necessary tools and test equipment, appropriate instructions and minimal assistance, troubleshoot electrical/electronic components and devices, using proven techniques.
 - S-13 Given an equipment training device, electronic sensors, motor control circuits, high voltage power supplies, transducers, servo amplifiers, fiber optic cables, necessary tools and minimal assistance, repair electrical/electronic systems.
 - S-14 Given a motor controller, a set of parameters and appropriate instructions, program motor controller.
 - S-15 Given screwdrivers, wrenches, sockets, hammers, pliers, wire strippers, saws, torque wrenches, vises, files and other special tools, demonstrate cleanroom-approved workmanship when using any handtools.
 - S-16 Given necessary handtools, materials and supplies, demonstrate cleanroom-approved workmanship skills when performing standard maintenance and repairs on electrical/electronic equipment.
 - S-17 Given a variety of drills and attachments, utilize drills and attachments in accordance with cleanroom-approved techniques.
 - S-18 Given a vacuum training device, tools, materials, supplies, manual and minimal assistance, demonstrate cleanroom-approved workmanship skills when installing vacuum pumps and gauges according to manufacturer's specifications.



Community college students earn nano-manufacturing certificates during an associate degree capstone semester at Penn State University, an MNT-EC partner.



MNT-EC Welcomes Involvement of Employers & Educators

The Micro Nano Technology Education Center (MNT-EC) was founded on the idea that working together with employers and educators will enhance the quality of education for students who then become higher quality technicians for the micro and nano technology industry.

Email info@micronanoeducation.org to join the initiative or ask questions.

