

**FIBER OPTIC CALIBRATION TECHNICIAN  
(Time-Based)**

**APPENDIX A**

O\*NET CODE 17-3029.08

This training outline is a minimum standard for Work Processes and Related Instruction. Changes in technology and regulations may result in the need for additional on-the-job or classroom training.

**WORK PROCESSES**

	<b>Approximate Hours</b>
<b>A. Calibration Instruments and Equipment</b>	<b>1000</b>
1. Receive oral and/or written assignments.	
2. Become familiar with established national and international calibration standard such as ANSI, ISO, etc.	
3. Set up laboratory and testing standards and record/report test results.	
4. Plan sequence of testing using blueprints, schematics, technical manuals, procedures, specifications, manufacturers' websites.	
5. Set up test equipment and conduct tests on the performance and reliability of fiber optic components such as distribution cables, truck cables, high density interconnect cables, standard patch cords, transmitters and receivers. Use pressure test gauges.	
6. Calibrate, troubleshoot and repair ultra-sophisticated fiber optic instruments including precision electrical, mechanical and optical components.	
7. Perform quality assurance on micrometers, calipers, other precision instruments, and masters.	
<b>B. Instrument and Equipment Calibration</b>	<b>2700</b>
1. Plan schedule of calibration procedures; enter scheduling data into computer.	
2. Prepare, process, and organize equipment; ensure it is neat and ready for calibration/service process.	
3. Install and repair instruments and equipment such as Optical Time Domain Reflectometers (OTDRs), Light Sources and Meters, Fiber Optic Cleavers, Signals	

Pulse/Test Boxes, Fiber Optic Identifiers, Inspection Scopes and Fault Locators.

4. Clean exterior splicer kits.
5. Receive equipment in lab and evaluate orders for importance.
6. Monitor environmental factors such as temperature, vibration, electrical noise.
7. Set up standard and special-purpose lab equipment to calibrate other instruments and test equipment. Use calibration jigs, fixtures, and required standards.

### **C. Instrument and Equipment Repair**

**3000**

1. Receive oral and/or written assignments.
2. Secure applicable schematics, procedures, equipment manuals, other technical documents.
3. Calibrate instruments and equipment.
4. Align and balance component parts and circuitry.
5. Disassemble instruments and equipment, as needed, using hand tools such as screwdrivers, nut-driver and hex wrench sets, needle-nose and side cutting pliers, utility knives, and cordless drill and bits.
6. Inspect components for defects.
7. Use hand tools and equipment such as: volt meters, fiber power meter, fiber fault locator, oscilloscope, OTDR, fiber polishing disk, bench-top microscope, carbide scribe, fiber cleaver, fiber splicer, and crimping tools.
8. Reassemble instruments and equipment.
9. Recalibrate instruments and equipment.
10. Recognize when repair is too sophisticated to be done in-house. Recognize when repair is too costly to be feasible.
11. Perform preventive maintenance on test apparatus and peripheral equipment. Maintain and analyze history of maintenance.

### **D. Metrology Equipment**

**250**

1. Receive oral and/or written assignment.
2. Secure applicable schematics, procedures, equipment manuals, or other technical documents.
3. Perform optical alignments to equipment.

4. Program and configure microprocessor-based metrology equipment.

**E. Documentation** **500**

1. Maintain day-to-day reports and logs accurately and in a timely manner.
2. Perform all steps in the sub-contract process such as computer work/packaging/maintaining logs.
3. Evaluate and maintain stock levels for parts used.
4. Ensure service orders are set up correctly in the database (serial numbers/part numbers, etc.).

**F. Other Skills (\*Optional)** **550**

1. Work with engineers, vendors and order the necessary parts for repair. Assist Senior Fiber Optic Calibration Technicians in staging equipment for service.
2. Review duties each morning with Department Manager to ensure accuracy.

**Approximate Total Hours** **8,000**

\*If optional components are not selected, the hours should be devoted to further mastery of the required work processes.

*Apprenticeship work processes are applicable only to training curricula for apprentices in approved programs. Apprenticeship work processes have no impact on classification determinations under Article 8 or 9 of the Labor Law. For guidance regarding classification for purposes of Article 8 or 9 of the Labor Law, please refer to <https://dol.ny.gov/public-work-and-prevailing-wage>*

# FIBER OPTIC CALIBRATION TECHNICIAN

## APPENDIX B

### RELATED INSTRUCTION

#### **Safety**

1. Proper Use of Personal Protective Equipment
2. Blood Borne Pathogens
3. Lockout/Tagout Procedures
4. Familiarization with MSDS for all Chemicals Used in this Trade
5. Proper Use, Storage, Disposal of Work-Related Chemicals
6. Safe Handling of High Pressure and Combustible Gases and Liquids (if Applicable)
7. Safely Working with Radioactive Devices (if applicable)
8. Safely Working with Lasers (if applicable)
9. First Aid – minimum of 6.5 hours every 3 years
10. Sexual Harassment Prevention Training – MUST comply with Section 201-g of the Labor law

#### **Blueprints, Schematics, Technical Manuals**

1. Reading Electrical and Mechanical Blueprints
2. Reading Electronic Schematics
3. Reading Technical Manuals
4. Basic Electro-Mechanical Sketching

#### **Mathematics**

1. College-level Algebra
2. Analytical Geometry

#### **Computer Skills**

1. Introduction to Personal Computer Hardware
2. Introduction to Computer Operating Systems
3. Introduction to Computer Programming
4. Introduction to Software Applications
5. Introduction to the Internet

## **Trade Theory and Science**

1. Mechanics (Static and Dynamic)
2. Theory of Electricity
3. Electronics Theory
4. Electronic Circuit Analysis
5. Metrology
6. Measurement Principles
7. Chemistry
8. Physics
9. Statistical and Quality Control Methods
10. Optics
11. Thermodynamics
12. Solid State Devices
13. Troubleshooting Techniques
14. Introduction to ISO, ANSI, IEC, AALA, ASTM, SAE, NIST Standards (optional)

## **Communication Skills**

1. Oral and Written Communication Skills
2. Team Working Skills
3. Assertiveness Training (optional)

144 hours of Related Instruction are required for each Apprentice for each year.

Appendix B topics are approved by New York State Education Department.