

U.S. Department Of Labor Employment And Training Administration Office of Apprenticeship Training, Employer and Labor Services (OATELS) Washington, D.C. 20210	<u>Distribution:</u> A-539 Headquarters A-544 All Field Tech A-547 SD+RD+SAC + Lab. Com	<u>Subject:</u> New Apprenticeable Occupations <u>Code:</u> 200
Symbols: DNIP/BAJ	Action: Immediate	

PURPOSE: To inform Office of Apprenticeship Training, Employer and Labor Services (OATELS), Bureau of Apprenticeship and Training (BAT) Staff of four new apprenticeable occupations:

1. Dispatcher, Service (Contact: ATR Kenneth J. Adducci, Denver, CO)
 O*NET Code: 43-5032.00
 RAIS Code: 0681
 Training Term: 2 years (4000 hours)
 Type of Training: Time – based

2. Multi-Story Window/Building Exterior Cleaner (Contact: ATR Colleen P. Henry, Des Plaines, IL)
 O*NET Code: 37-2011.00
 RAIS Code: 0688
 Training Term: 3 years (6000 hours)
 Type of Training: Time – based

3. Tool Programmer, Numerical Control (Contact: ATR Wilbert M. Roemmich, Omaha, NE)
 O*NET Code: 37-2011.00
 RAIS Code: 0690
 Training Term: 3 years (6000 hours)
 Type of Training: Time – based

4. Control Equipment Electrician-Technician(Contact: ATR Salvators A. D'Amore, Iselin, NJ)
 O*NET Code: 49-2094.00
 AIMS Code: 0693
 Training Term: 5 years (10,000 hours)
 Type of Training: Time - based

The above occupations have been approved as apprenticeable. They will be added to the Bureau's list of recognized apprenticeable occupations.

A suggested work process schedule and an outline of related instruction are attached for each occupation. For additional information contact the servicing Apprenticeship and Training Representative.

Attachments

**WORK PROCESS SCHEDULE
DISPATCHER, SERVICE**

O*NET Code: 43-5032.00 RAIS Code: 0681

DESCRIPTION: Dispatches customer service workers to install, service, and repair electric, gas, or steam powered systems or appliances, or cable television systems: Reviews work orders from departments of complaints from customers and records type and scope of service to be performed. Determines and schedules orders according to urgency. Contacts supply storekeeper to verify availability of parts and equipment to ensure scheduled work performance. Receives check in calls from service workers by radio, telephone, or in person. Informs workers of type and location of work to be performed and dispatches workers to job. Keeps records of repairs, installation, removal of equipment or appliances, and hours required on each job. May maintain records, using computer terminal.

On-the-Job Training

	APPROXIMATE HOURS	
	<u>MIN.</u>	<u>MAX.</u>
A. Substations/Overhead/Underground	950	1000
B. Mapping	200	200
C. Switching Order and Procedures	350	350
D. Outage Procedures	150	150
E. Sectionalizing	250	250
F. System Coordination Fuse, OCR	150	150
G. Reports, Records, Surveys	450	500
H. Radio Communication	100	100
I. Theory of AC and DC	200	250
J. Electric Systems Theory	350	350
K. OCR's Regulators, Capacitors	400	450
L. Switches Gang/Single	100	100
M. Documentation	100	100
TOTAL	3750	4000

RELATED INSTRUCTION

- A. Safety
- B. AC Principles
- C. Applied AE Fundamentals
- D. Electricity
- E. Electricity and Magnetism
- F. AC Motors
- G. Protective Relaying
- H. Electric Power Measurements
 - I. Electric Power Generating Stations
 - J. Electric Power Substations
- K. Local Distribution of Electric Power
- L. Transmission Lines
- M. Underground Power System
- N. Voltage Regulation of Distribution System

**WORK PROCESS SCHEDULE
CONTROL EQUIPMENT ELECTRICIAN-TECHNICIAN**

O*NET Code: 49-2094.00 AIMS Code: 0693

Description: Installs, troubleshoots, repairs, replaces, and calibrates electrical, electronic, hydraulic, and pneumatic equipment, apparatus, controls, and control systems; pressure, level, flow, and radiation-measuring instruments; electronic circuits and components; and wiring and cabling systems, in chemical processing plant, following electrical code, schematic diagrams, blueprints and other specifications and using hand-tools, power tools, and electrical and electronic test equipment and measuring instruments.

On-The-Job Training

	APPROXIMATE <u>HOURS</u>
1. <u>Planning and Organizing Work</u>	500
A. Read, understand and use technical drawings	
B. Inventory equipment and supplies	
C. Read and understand equipment manuals and technical standards	
D. Create drawings and use CADD system	
E. Outline logical task sequence	
F. Use materials and equipment management system for work orders, purchase orders, equipment history, preventive maintenance	
2. <u>Performing Activities Related to DC Circuits</u>	200
A. Series circuits	
B. Parallel circuits	
C. Braking systems	
D. Locomotives	
3. <u>Performing Activities Related to AC Circuits</u>	300
A. Series circuits	
B. Parallel circuits	
C. Lighting	
D. Transformation	
4. <u>Install and Maintain Process Control Equipment</u>	2000
A. Alarms and monitoring systems	
B. Signal transmission	
C. Signal indicators and recorders	
D. Distributed Control Systems (DCS)	
E. Programmable Logic Controllers (PLC)	
F. Pressure regulators	
G. Electronic and pneumatic controllers	
H. Control valves	
I. Transducers	
J. PID controllers	

5. <u>Compute Service Loads and Install Service Entrances</u>	500
A. Load balance	
B. Motor loads	
C. Capacity calculation	
D. Motor Control Centers	
6. <u>Rough in Circuits, Trim out and Maintain Electrical Devices</u>	500
A. Conduit and cable trays	
B. Wiring systems and devices	
C. Power panels	
D. National Electrical Code	
7. <u>Maintain Electronic Equipment</u>	500
A. Printed circuit boards and electronic components	
B. Power supplies	
8. <u>Maintain Frequency Measuring Equipment</u>	500
A. Oscilloscopes	
B. Oscillators	
C. Pulse counters	
9. <u>Install and Maintain Process Variable Measuring Equipment</u>	2000
A. Flow	
B. Temperature	
C. Pressure	
D. Level	
E. Speed	
F. Physical and chemical property analyzers	
G. Photometric	
H. Radiation	
10. <u>Install and Maintain Environmental Control Systems</u>	300
A. Heating, ventilation and air conditioning (HVAC)	
11. <u>Install and Maintain Electrical Control Devices</u>	1700
A. Motors	
B. Starters	
C. Variable Frequency Drives (VFD)	
D. Alarms and interlock systems	
12. <u>Install and Maintain Low-Voltage and Data Communication Systems</u>	1000
A. Telephone	
B. Intercom	
C. Fiber optic	
TOTAL	10,000

Related Instruction

<u>First Year</u>	<u>Approximate Hours</u>
A. Developmental Math (if needed)	
B. Elementary Algebra (if needed)	
C. Engineering Technical Math	48
D. Basic Electricity (customized)	96
E. AC Control Circuits (customized)	96
<u>Second Year</u>	
A. National Electric Code	96
B. Instrumentation I	96
<u>Third Year</u>	
A. Microcomputer Electronics and	
B. Air Conditioning Fundamentals combined and customized)	96
C. Instrumentation II and Programmable	
D. Logic Controllers (combined and customized)	96
<u>Fourth Year</u>	
A. Instrumentation III	96
B. CADD for Instrumentation	24
C. Instrumentation IV	96
D. CADD for Electronics	24
<u>Fifth Year</u>	
A. Semiconductors	96
B. Electronic Circuits	96
Total	1056

WORK PROCESS SCHEDULE

Tool Programmer, Numerical Control
O*NET Code: 51-4012.00 AIMS Code: 0690

Description: Plans numerical control program to control contour-path machining of metal parts on automatic machine tools: Analyzes drawings, sketches, and design data of part to determine dimension and configuration of cuts, selection of cutting tools, and machine speeds and feed rates, according to knowledge of machine shop processes, part specifications, and machine capabilities. Determines reference points and direction of machine cutting paths. Computes angular and linear dimensions, radii, and curvatures, and outlines sequence of operations required to machine part. prepares geometric layout on graph paper or using computer-assisted drafting software to show location of reference points and direction of cutting paths, using drafting instruments or computer. Writes instruction sheets and cutter lists to guide setup and operation of machine. Writes program of machine instructions in symbolic language to encode numerical control tape or direct numerical control data base to regulate movement of machine along cutting path. Compares encoded tape or computer printout with original program sheet to assure accuracy of machine instructions. Revises program to eliminate instruction errors or omissions. Observes operation of machined on trial run to prove taped or programmed instructions.

On-The-Job Training

	APPROXIMATE HOURS
A. Job orientation, familiarization with company policies	150
B. Acquaint the apprentice with the tools of the trade	200
C. Assemble cutting tools	100
D. Loading of programs	100
E. Attaching and positioning of fixtures	250
F. Entering offsets or machine parameters	250
G. Entering and changing machine commands	100
H. Observe machine operation to detect malfunctions	700
I. Work holding and fixturing	100
J. Analyze drawings, sketches, design data	500
K. Drawing, CAD/CAM	1500
L. Writing programs for machine operations	2000
M. Program maintenance	50
Total	6000

Safety and safe working practices shall be adhered to throughout the apprenticeship.

Related Instruction

FIRST YEAR

1. Manufacturing processes
2. Blueprint Reading and Drawing
3. Machine Tools (operation of lathe, milling machines, grinders, drill press)
4. Materials of industry (familiarity with various materials used in industry)
5. Industrial mathematics
6. Safety practices and procedures

SECOND YEAR

1. Computer numerically controlled machines (operation and maintenance)
2. Machine tool and design drafting
3. Computer literacy
4. Applied hydraulics, pneumatics, and electricity

THIRD YEAR

1. Trigonometry
2. Oral and written communications
3. Computer aided drafting
4. Microcomputer applications

Recommended Related Instruction Hours - 432 (144 hours per year)

WORK PROCESS SCHEDULE

Multi-Story Window/Building Exterior Cleaner
O*NET CODE: 37-2011.00 AIMS CODE: 0688

DESCRIPTION: Cleans all glass surfaces on the interior and exterior including skylights, atrium glass, and other building surfaces, such as spandrels, curtain walls, granite, marble, metal, etc., on all residential, commercial, institutional, and "high rise" buildings and structures. The equipment used includes, but is not limited to, Type F Permanent Installation Scaffolds, Suspended Powered platforms, Modular Platforms, portable Rooftop Suspensions Systems, Controlled Descent Systems, Fall Arrest Systems, Extension and Sectional (piece) ladders, Window Cleaner Belts, Lifts, and Rolling Towers and poles.

On-The-Job-Training Outline

	Approximate Hours
Basic Window Cleaning:	150
1. Tools and Usage	
Powered Platforms and Chairs (Baskets) and Safety Procedures	2150
1. Rigging	
2. Fall Protection System	
3. Equipment	
4. Skyclimbers	
5. Compacts	
6. Spiders	
7. Hi-Lo's	
8. Power Climbers	
9. Others	
10. Cable - Wire and Electric	
11. Sizing	
12. Wear and Abrasion	
13. Electricity	
Controlled Descent Systems and Safety Procedures	2200
1. Rigging	
2. Fall Protection System	
3. Equipment	
4. Sky Genie	
5. Miller	
6. Rack and Bar	
7. Figure 8's	
8. Fisk Descenders	
9. Others	
10. Fibre Rope	
11. Synthetic Fibre	
12. Knots	
13. Care of Fibre Ropes	
14. Rope Inspection and Protection	

Lifts and Rolling Towers and Safety Procedures	1000
1. Manual	
2. Powered	
Extension, Section or Piece Ladders and Safety Procedures	200
Window Cleaner Belts and Safety Procedure	250
Poles and Safety Procedures	50
TOTAL	6000
Related Instruction:	
Basic Window Cleaning:	20
Powered Platforms and Chairs (Baskets) and Safety Procedures	200
1. Rigging	
2. Fall Protection System	
3. Equipment	
4. Cable - Wire and Electric	
5. Electricity	
Controlled Descent Systems and Safety Procedures	110
1. Rigging	
2. Fall Protection System	
3. Equipment	
4. Fibre Rope	
Chemicals and Safety Procedures	50
Including OSHA regulations	
Lifts and Rolling Towers and Safety Procedures	40
Extension Section or Piece Ladders	10
Window Cleaner Belts and Safety Procedures	10
Poles and Safety Procedure	5
TOTAL	445