BENCH JEWELER (PRODUCTION)

APPENDIX A

O*NET CODE 51-9071.00

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

	Approximate Hours
A. Workplace Orientation	**400**
1. Demonstrate knowledge of workplace, polices, etc.	
2. Describe workplace structure, workflow, and relation of trade to the workflow.	
3. Practice working safely in the workplace, e.g., follow procedures, safety plans, etc.	
B. Tools & Techniques	**2500**
1. Use various hand tools, such as: files, scribes, hand punches, snips, jeweler saws, saw blades, pliers, hammers, bezel pushers, stone-setting punches, magnifiers, and hand stamps.	
2. Use rotary tools like flex-shaft, hammer handpiece, stone setter polishing machine, lap wheel.	
3. Sanding and polishing processes; understand grit differences.	
4. Measure (metric and SAE), using gauge plates, calipers dividers, and jigs.	
5. Employ basic bench techniques: such as piercing, sawing, drilling, and polishing.	
6. Use hammers to form and add texture to pieces.	
7. Work with flex-shaft abrasives: rubber wheel, sanding and polishing brushes; learn differences in grit and shape.	
8. Use stone setting burrs: including hart, ball, cup, budd, setting.	
9. Perform basic tool maintenance and repair.	
10. Cold connecting rivets.	

11. Perform arc welding on semi-precious and precious metals.
12. Solder semi-precious and precious metals.
13. Learn and use basic laser welding techniques for semi-precious and precious metals.
14. Set stones: bezel and prong.
15. Apply patinas.

C. Jewelry Production Fundamentals **600**

1. Demonstrate understanding of the manufacturing process.
2. Use materials, tools, shared work space, and company time Properly.
3. Spend time making repetitive motions daily.
4. Work independently and as part of a team.
5. Demonstrate effective time management; be punctual, complete work by date(s) due and meet deadlines.
6. Exhibit thorough understanding of items produced by the employer.
7. Demonstrate familiarity with production equipment and functions .
8. Demonstrate ability to read and interpret design spec sheets, training process steps, and quality control standards.
9. Exhibit grasp of trade math needed for work, e.g., decimal system, measurements (metric and standard).
10. Communicate to the appropriate personnel, orally and in digital formats
11. Demonstrate digital literacy, e.g., Google Suite, Slack®.
12. Present ideas clearly and at appropriate times.
13. Use logic and reasoning to identify strengths and weaknesses of alternative solutions, conclusions, and/or approaches to problems.
14. Use cost/benefit analysis to choose most appropriate course of action.
15. Demonstrate ability to analyze problems and suggest solutions.
16. Manufacture items consistent with employer’s time and quality standards.

17. Demonstrate dexterity, excellent eye-hand coordination, pay attention to detail.
18. Demonstrate ability to ask for help from trainer or direct manager when needed.
19. Inform appropriate person(s) when there is a problem with a tool, material, or environment, so the issue can be resolved.
20. Deal with conflict in a clear, constructive, professional, honest, kind, and immediate way.

D. Quality Control **600**

1. Read and understand quality standards.
2. Identify materials that fall outside quality standards prior to production, such as a missing or incorrect component.
3. Identify manufacturing defects and execute corrective actions when encountering
4. things such as:
    a. Porosity;
    b. Overworked materials;
    c. Surface imperfections: thin, wavy, scratchy, dirty, incomplete polish;
    d. Incorrect assembly;
    e. Engraving errors: off- center, shallow;
    f. Weak welds, weak solder joints;
    g. Stone setting errors: lifted prong; short/long prong; crooked stone;
    h. Metal discoloration.

E. Manufacturing Safety **400**

1. Follow safety procedures while working with flammable gas: oxyacetylene and acetylene torch.
2. Learn and practice welding safety (arc and laser).
3. Recognize and avoid rotary tool and abrasive hazards.
4. Handle and dispose of chemicals per procedure, such as:
    a. Oxidizing chemicals;
    b. Pickle;
    c. Ultrasonic solution.

Approximate Total Hours **4500**

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

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APPENDIX B

RELATED INSTRUCTION

Safety

1. Fire Prevention Safety
2. Use of Personal Protective Equipment
3. Use, Storage and Disposal of Hazardous Materials
4. All Applicable OSHA Regulations, Standards and Rules
5. Sexual Harassment Prevention Training – must comply with Section 201-g of the Labor Law
6. First Aid and CPR (6.5 hours)
7. Equipment Safety Operating Practices
8. Right-to-Know/Safety Data Sheets (SDS)

Mathematics

1. Fundamentals
2. Applications to the Trade
3. Precision Measurements
4. Using Handbooks, Tables, Etc.
5. Estimating Materials and Costs (optional)

Trade Theory and Science

1. Materials of the Trade
2. Welding, Soldering
3. G61 - Flammable Gas Certification
4. Metallurgy Basics
5. Gemstone and Diamond Basics
6. Jewelry Design and Rendering
7. Lost wax casting
8. Casting Safety: Investment handling and Storage + molten metal safety
9. Wax working
10. Wax injector, Investing, Centrifugal casting, Vacuum casting, Vulcanizer, Rubber molds

11. Stone Setting: Channel, Marquise, Pear shape, Gypsy, Bead
12. Basic repair and resizing
13. Oral and written communication, professionalism

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

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