

Florida Department of Education
 CLUSTER CURRICULUM FRAMEWORK

Cluster Title: CLOCK, WATCH, JEWELRY MAKING AND REPAIR CLUSTER
Cluster Type: Job Preparatory
Occupational Area: Industrial Education
Components: Core, Two Programs with Nine Occupational Completion Points

	<u>Secondary</u>	<u>PSAV</u>
Grade Level	10,11,12	30, 31
Facility Code	245	245
CSO	SkillsUSA, Inc.	SkillsUSA, Inc.
Co-op Method	Yes	Yes
Apprenticeship	Yes	Yes

I. MAJOR CONCEPTS/CONTENT: The purpose of the programs in this cluster is to prepare students for employment and/or specialized training in the clock/watch and jewelry occupations.

The Clock/Watch Making and Repair program prepares students for employment as Clock, Watch and Jewelry Technician Assistants (SOC 49-9064), Clock and Watch Repair Technicians (SOC 49-9064), Quartz Analog Technicians (SOC 49-9064), and Clock and Watch Makers (SOC 49-9064). The clock and watch program should meet the essentials and guidelines for recognition by the American Watchmaker and Clockmaker Institute (AWI).

The Jewelry Making and Repair program prepares students for employment as Clock, Watch and Jewelry Technician Assistants (SOC 49-9064), Jewelry Designers (SOC 51-9071.01), Wax Modeler/Casters (SOC 51-9071.03), Jewelry Repairers (SOC 51-9071.04), Stone Setters (SOC 51-9071.06) and Certified Jewelers/Gemologists (SOC 51-9071.00).

This cluster focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the Clock/Watch and Jewelry Repair industry; planning, management, finance, technical and product skills, underlying principles of technology, labor issues, community issues and health, safety, and environmental issues.

II. CLUSTER STRUCTURE: This cluster is a planned sequence of instruction consisting of two programs with a common core and nine occupational completion points (OCPs). Four OCPs exist within the Clock/Watch Making Repair program and six OCPs exist within the Jewelry Making and Repair program. When the recommended sequence is followed, the structure will allow students who successfully complete specified competencies to exit for employment or articulate into specialized training.

It is recommended that students complete the core or demonstrate a mastery of the student performance standards contained in the core before advancing to the course(s) in the next level of the programs. Competencies established by the Clock/Watch and Jewelry Repair Industries for "Clock/Watch and Jewelry Repair Standards" plus integration of academic requirements and training in communications, leadership, human relations, employability skills and safe, efficient work practices account for 450 hours in the CORE curriculum.

Listed below are the courses that comprise the Jewelry Making and Repair program when offered at the secondary level:

Occupational Completion Point - DATA CODE A

Clock, Watch and Jewelry Technical Assistant - SOC 49-9064
8745501 - Clock, Watch, Jewelry Making and Repair Core 1 (1.0 credit)
8745502 - Clock, Watch Jewelry Making and Repair Core 2 (1.0 credit)
8745503 - Clock, Watch Jewelry Making and Repair Core 3 (1.0 credit)

Occupational Completion Point - DATA CODE B

Jewelry Designer - SOC 51-9071.01
8745504 - Jewelry Making and Repair 4 (1.0 credit)
8745505 - Jewelry Making and Repair 5 (1.0 credit)
8745506 - Jewelry Making and Repair 6 (1.0 credit)

Occupational Completion Point - DATA CODE C

Wax Modeler and Caster - SOC 51-9071.03
8745507 - Jewelry Making and Repair 7 (1.0 credit)

Occupational Completion Point - DATA CODE D

Jewelry Repairer - SOC 51-9071.04
8745508 - Jewelry Making and Repair 8 (1.0 credit)
8745509 - Jewelry Making and Repair 9 (1.0 credit)

Occupational Completion Point - DATA CODE E

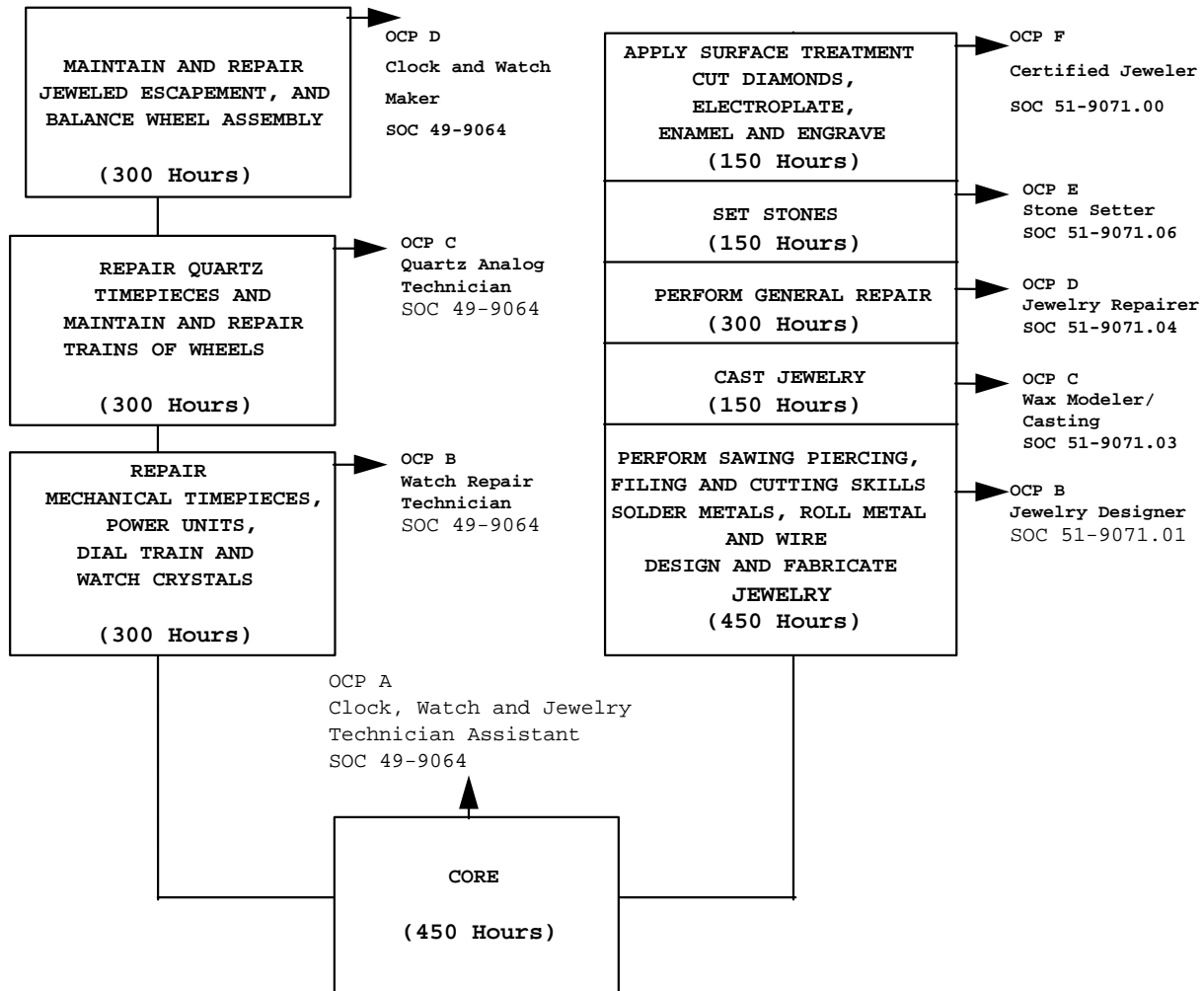
Stone Setter - SOC 51-9071.06
8745510 - Jewelry Making and Repair 10 (1.0 credit)

Occupational Completion Point - DATA CODE F

Certified Jeweler - SOC 51-9071.00
8745511 - Jewelry Making and Repair 11 (1.0 credit)

The following diagram illustrates the cluster structure, occupational completion points and job titles:

CLOCK, WATCH, JEWELRY MAKING AND REPAIR



III. **LABORATORY ACTIVITIES:** Shop or laboratory activities are an integral part of the Clock, Watch, Jewelry Making and Repair cluster. These activities provide instruction in the use of equipment, tools, materials and processes found in the clock, watch and jewelry industries.

IV. **SPECIAL NOTES:** SkillsUSA, Inc. is the appropriate Career Student Organization (CSO) for providing leadership training and for reinforcing specific career and technical skills. CSOs, when provided, shall be an integral part of the career and technical instructional program, and the activities of such organizations are defined as part of the curriculum in accordance with Rule 6A-6.065, F.A.C.

Cooperative training - OJT is appropriate for this program. Whenever cooperative training - OJT is offered, the following are required for each student: a training plan, signed by the student, teacher, and employer, which includes instructional objectives and a list of on-the-job and in-school learning experiences; a workstation that reflects

equipment, skills and tasks that are relevant to the occupation which the student has chosen as a career goal. The student must receive compensation for work performed.

If these programs are offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic-skills grade levels required for postsecondary adult vocational students to complete these programs are: Mathematics 9.0, Language 9.0, and Reading 9.0. These grade-level numbers correspond to grade-equivalent scores obtained on one of the state-designated basic-skills examinations. If a student does not meet the basic-skills level required for completion of the program, remediation should be provided concurrently through Vocational Preparatory Instruction (VPI). Please refer to the Rule for exemptions.

To be transferable statewide between institutions, these programs/courses must have been reviewed, and a "transfer value" assigned to the curriculum content by the appropriate Statewide Course Numbering System discipline committee. This does not preclude institutions from developing specific program or course articulation agreements with each other.

This program may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 1001.44 F.S.

When a secondary student with a disability is enrolled in a vocational class with modifications to the curriculum framework, the particular outcomes and student performance standards that the student must master to earn credit must be specified on an individual basis. The job or jobs for which the student is being trained should be reflected in the student's desired postschool outcome statement on the Transition Individual Educational Plan (Transition IEP).

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Adult students with disabilities must self-identify and request such services. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

SCANS Competencies: Instructional strategies for this program must include methods that require students to identify, organize, and use resources appropriately; to work with each other cooperatively and productively; to acquire and use information; to understand social, organizational, and technological systems; and to work with a variety of tools and equipment. Instructional strategies must also incorporate the methods to improve students' personal qualities and high-order thinking skills.

Florida Department of Education
INTENDED OUTCOMES

Program Title: Clock/Watch Making and Repair

PSAV

Program Number: I470408
CIP Number: 0647.040800
Grade Level: 30, 31
Standard Length: 1350 Hours
Certification: WATCH REPR @ 7G INSTRMENT @ 7G
Basic Skills:
Math 9
Language 9
Reading 9

V. INTENDED OUTCOMES: After successfully completing the appropriate course(s), the student will be able to:

OCCUPATIONAL COMPLETION POINT - DATA CODE A (450 Hours)

Clock, Watch and Jewelry Technician Assistant - SOC 49-9064

- 01.0 Develop basic trade skills.
- 02.0 Demonstrate safe use of basic tools and equipment.
- 03.0 Perform sawing, piercing, filing and cutting skills.
- 04.0 Solder metals.
- 05.0 Perform general repairs.
- 06.0 Perform polishing techniques.
- 07.0 Perform shop management skills.
- 08.0 Identify timepieces.
- 09.0 Demonstrate appropriate communication skills.
- 10.0 Demonstrate appropriate math skills.
- 11.0 Demonstrate appropriate understanding of basic science.
- 12.0 Demonstrate employability skills.
- 13.0 Demonstrate an understanding of entrepreneurship.

OCCUPATIONAL COMPLETION POINT - DATA CODE B (300 Hours)

Clock and Watch Repair Technician - SOC 49-9064

- 02.0 Demonstrate safe use of basic tools and equipment.
- 07.0 Perform shop management skills.
- 10.0 Demonstrate appropriate math skills.
- 11.0 Demonstrate appropriate understanding of basic science.
- 14.0 Repair mechanical timepieces.
- 15.0 Repair power units.
- 16.0 Repair dial train.
- 17.0 Replace watch crystals.

OCCUPATIONAL COMPLETION POINT - DATA CODE C (300 Hours)

Quartz Analog Technician - SOC 49-9064

- 18.0 Maintain and repair train of wheels.
- 19.0 Repair quartz timepieces.

OCCUPATIONAL COMPLETION POINT - DATA CODE D (300 Hours)

Clock and Watch Maker - SOC 49-9064

- 09.0 Demonstrate appropriate communication skills.
- 20.0 Maintain and repair jeweled escapement.
- 21.0 Maintain and repair balance wheel assembly.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Program Title: Clock/Watch Making and Repair
Postsecondary Number: I470408

OCCUPATIONAL COMPLETION POINT - DATA CODE A

Clock, Watch, and Jewelry Technician Assistant - SOC 49-9064

- 01.0 DEVELOP BASIC TRADE SKILLS--The student will be able to:
- 01.01 Organize shop and maintain tools.
 - 01.02 Identify safety skills.
 - 01.03 Develop measuring and weighing skills.
 - 01.04 Test and identify metals.
 - 01.05 Identify problems with quartz watches.
 - 01.06 Identify and use proper hand tools and equipment.
 - 01.07 Demonstrate knowledge of the "FL Right-to-Know Law" as recorded in Florida Statutes, Chapter 442.
- 02.0 DEMONSTRATE SAFE USE OF BASIC TOOLS AND EQUIPMENT--The student will be able to:
- 02.01 Practice tool and equipment safety.
- 03.0 PERFORM SAWING, PIERCING, FILING AND CUTTING SKILLS--The student will be able to:
- 03.01 Identify appropriate sawing, piercing, filing and cutting skills.
- 04.0 SOLDER METALS--The student will be able to:
- 04.01 Select soldering equipment and hand tools.
 - 04.02 Select appropriate solder and flux.
 - 04.03 Solder metals.
- 05.0 PERFORM GENERAL REPAIR--The student will be able to:
- 05.01 Replace watch batteries, gaskets, band, pins and round watch crystals.
 - 05.02 Remove and replace watch stems.
 - 05.03 Repair and replace finding.
 - 05.04 Repair basic chain links.
- 06.0 PERFORM POLISHING TECHNIQUES--The student will be able to:
- 06.01 Buff metals using abrasives.
 - 06.02 Polish metals.
 - 06.03 Clean metals.
 - 06.04 Polish plastic crystals.
- 07.0 PERFORM SHOP MANAGEMENT SKILLS--The student will be able to:
- 07.01 Apply positive relations with employer or client.
 - 07.02 Identify and assess repairs.
- 08.0 IDENTIFY TIMEPIECES--The student will be able to:

- 08.01 Use standard references and computerized database to identify watch movements and replacement parts.
- 08.02 Describe timepiece parts and their functions.
- 09.0 DEMONSTRATE APPROPRIATE COMMUNICATION SKILLS--The student will be able to:
 - 09.01 Apply positive customer relations' skills.
 - 09.02 Write logical and understandable statements, or phrases, to accurately fill out forms/invoices commonly used in business and industry.
 - 09.03 Read and understand graphs, charts, diagrams, and tables commonly used in this industry/occupation area.
 - 09.04 Read and follow written and oral instructions.
 - 09.05 Answer and ask questions coherently and concisely.
 - 09.06 Read critically by recognizing assumptions and implications and by evaluating ideas.
 - 09.07 Demonstrate appropriate telephone/communication skills.
- 10.0 DEMONSTRATE APPROPRIATE MATH SKILLS--The student will be able to:
 - 10.01 Solve problems for volume, weight, area, circumference and perimeter measurements for rectangles, squares, and cylinders.
 - 10.02 Measure tolerance(s) on horizontal and vertical surfaces using millimeters, centimeters, feet and inches.
 - 10.03 Add, subtract, multiply and divide using fractions, decimals, and whole numbers.
 - 10.04 Determine the correct purchase price, to include sales tax and discounts.
 - 10.05 Demonstrate an understanding of federal, state and local taxes and their computation.
 - 10.06 Demonstrate an understanding of applied computer skills.
- 11.0 DEMONSTRATE APPROPRIATE UNDERSTANDING OF BASIC SCIENCE--The student will be able to:
 - 11.01 Demonstrate knowledge of metallurgy.
 - 11.02 Understand molecular action as a result of temperature extremes, chemical reaction, and moisture content.
- 12.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:
 - 12.01 Perform safety and health practices.
 - 12.02 Understand employment capabilities.
 - 12.03 Demonstrate appropriate work behavior.
 - 12.04 Project a professional image.
 - 12.05 Work individually and cooperatively as a member of regular or culturally diverse team.
 - 12.06 Utilize communication skills applicable to the industry.
 - 12.07 Balance personal and professional life.
 - 12.08 Use and conserve resources and energy.
 - 12.09 Locate and select employment opportunities.
 - 12.10 Demonstrate employment-seeking skills.
 - 12.11 Use and conserve resources and energy.
- 13.0 DEMONSTRATE AN UNDERSTANDING OF ENTREPRENEURSHIP--The student will be able to:
 - 13.01 Define entrepreneurship.

- 13.02 Describe the importance of entrepreneurship to the American economy.
- 13.03 List the advantages and disadvantages of business ownership.
- 13.04 Identify the risks involved in ownership of a business.
- 13.05 Identify the necessary personal characteristics of a successful entrepreneur.
- 13.06 Identify the business skills needed to operate a small business efficiently and effectively.
- 13.07 Adapt to change.

OCCUPATIONAL COMPLETION POINT - DATA CODE B

Clock and Watch Repair Technician - SOC 49-9064

02.0 DEMONSTRATE SAFE USE OF BASIC TOOLS AND EQUIPMENT--The student will be able to:

- 02.02 Operate polishing machine.
- 02.03 Operate ultrasonic cleaning machine.
- 02.04 Operate staking set.
- 02.05 Operate lathe.
- 02.06 Perform staking set procedures.
- 02.07 Perform basic lathe procedures.

07.0 PERFORM SHOP MANAGEMENT SKILLS--The student will be able to:

- 07.03 Prepare cost estimates and work orders.
- 07.04 Maintain a shop production schedule.
- 07.05 Maintain inventory.
- 07.06 Explain impact of professional trade organizations on the industry.

10.0 DEMONSTRATE APPROPRIATE MATH SKILLS--The student will be able to:

- 10.07 Determine measurements in millimeters and inches.
- 10.08 Determine tap size of crowns.
- 10.09 Determine size of movements using ligne gauge.
- 10.10 Use Dennison and millimeter measures to determine replacement size for mainspring.

11.0 DEMONSTRATE APPROPRIATE UNDERSTANDING OF BASIC SCIENCE--The student will be able to:

- 11.03 Draw conclusions or make inferences from data.
- 11.04 Identify health-related problems that may result from exposure to work related chemicals and hazardous materials, and know the proper precautions required for handling such materials.
- 11.05 Understand pressure measurement in terms of P.S.I., inches of mercury and K.P.A.

14.0 REPAIR MECHANICAL TIMEPIECES--The student will be able to:

- 14.01 Disassemble and inspect timepiece.
- 14.02 Make repair parts using jeweler's lathe.
- 14.03 Repair timepiece.
- 14.04 Clean timepiece.
- 14.05 Assemble time train.
- 14.06 Assemble dial train.
- 14.07 Synchronize and test timepiece.

15.0 REPAIR POWER UNITS--The student will be able to:

- 15.01 Disarm mainspring.
- 15.02 Repair or replace mainspring.
- 15.03 Repair or replace barrel piece and cover.

16.0 REPAIR DIAL TRAIN--The student will be able to:

- 16.01 Repair and adjust dial train.
- 16.02 Repair setting mechanism.
- 16.03 Repair and adjust winding mechanism.

17.0 REPLACE WATCH CRYSTALS--The student will be able to:

- 17.01 Identify fancy crystal replacements.

OCCUPATIONAL COMPLETION POINT - DATA CODE C

Quartz Analog Technician - SOC 49-9064

18.0 MAINTAIN AND REPAIR TRAIN OF WHEELS--The student will be able to:

- 18.01 Make gears using gear cutter.
- 18.02 Straighten pivots and gears.
- 18.03 Re-pivot arbors and replace teeth or gears.
- 18.04 Replace jeweled or metal bushings.
- 18.05 Straighten bent pivots.
- 18.06 Repivot broken pivots.
- 18.07 Rue wheels.
- 18.08 Perform advanced lathe procedures.

19.0 REPAIR QUARTZ TIMEPIECES--The student will be able to:

- 19.01 Identify movement manufacturer.
- 19.02 Test and identify battery replacement.
- 19.03 Install new batteries.
- 19.04 Replace defective gaskets.
- 19.05 Use waterproof case opener.
- 19.06 Use case press.
- 19.07 Use waterproof testing device.
- 19.08 Identify failures using testing device.
- 19.09 Determine replacement movements.
- 19.10 Select strategy for replacing versus repairing movements.
- 19.11 Clean quartz movements.

OCCUPATIONAL COMPLETION POINT - DATA CODE D

Clock and Watch Maker - SOC 49-9064

09.0 DEMONSTRATE APPROPRIATE COMMUNICATION SKILLS--The student will be able to:

- 09.08 Reinforce proper business ethics.

20.0 MAINTAIN AND REPAIR JEWELLED ESCAPEMENT--The student will be able to:

- 20.01 Repair and adjust timepiece escapement.
- 20.02 Repivot pallet arbor.
- 20.03 Replace pallet jewels.

21.0 MAINTAIN AND REPAIR BALANCE WHEEL ASSEMBLY--The student will be able to:

- 21.01 Replace friction and rivet-type balance staffs.

- 21.02 True balance wheel.
- 21.03 Poise balance wheel.
- 21.04 Straighten hair spring.
- 21.05 Replace roller and jewel.
- 21.06 Modify new balance staff.
- 21.07 Clean and service balance jewels.
- 21.08 Perform staking set procedures.

Florida Department of Education
INTENDED OUTCOMES

Program Title:	Jewelry Making and Repair	
	<u>Secondary</u>	<u>PSAV</u>
Program Number:	8745500	I480602
CIP Number:	0648.060200	0648.060200
Grade Level:	9-12	30, 31
Standard Length:	11 credits	1650 Hours
Certification	METAL WORK @ 7G JWLY MFGR @ 7G	METAL WORK @ 7G JWLY MFGR @ 7G
Basic Skills:		
Math		9
Language		9
Reading		9

V. INTENDED OUTCOMES: After successfully completing the appropriate course(s), the student will be able to perform the following:

OCCUPATIONAL COMPLETION POINT - DATA CODE A

Clock, Watch and Jewelry Technician Assistant - SOC 49-9064

- 01.0 Develop basic trade skills.
- 02.0 Demonstrate safe use of basic tools and equipment.
- 03.0 Perform sawing, piercing, filing and cutting skills.
- 04.0 Solder metals.
- 05.0 Perform general repairs.
- 06.0 Perform polishing techniques.
- 07.0 Perform shop management skills.
- 08.0 Identify timepieces.
- 09.0 Demonstrate appropriate communication skills.
- 10.0 Demonstrate appropriate math skills.
- 11.0 Demonstrate appropriate understanding of basic science.
- 12.0 Demonstrate employability skills.
- 13.0 Demonstrate an understanding of entrepreneurship.

OCCUPATIONAL COMPLETION POINT - DATA CODE B

Jewelry Designer - SOC 51-9071.01

- 02.0 Demonstrate safe use of basic tools and equipment.
- 03.0 Perform sawing, piercing, filing and cutting skills.
- 04.0 Solder metals.
- 07.0 Perform shop management skills.
- 11.0 Demonstrate an appropriate understanding of basic science.
- 22.0 Roll metal and wire.
- 23.0 Design and fabricate jewelry.

OCCUPATIONAL COMPLETION POINT - DATE CODE C

Wax Modeler/Casting - SOC 51-9071.03

- 24.0 Cast jewelry.

OCCUPATIONAL COMPLETION POINT - DATE CODE D

Jewelry Repairer - SOC 51-9071.04

05.0 Perform general repair.

OCCUPATIONAL COMPLETION POINT - DATE CODE E

Stone Setter - SOC 51-9071.06

25.0 Set stones.

OCCUPATIONAL COMPLETION POINT - DATE CODE F

Certified Jeweler/Gemologist - SOC 51-9071.00

09.0 Demonstrate appropriate communication skills.

26.0 Apply surface treatment.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Program Title: Jewelry Making and Repair
Postsecondary Number: I480602

OCCUPATIONAL COMPLETION POINT - DATA CODE A

Clock, Watch and Jewelry Technician Assistant - SOC 49-9064

- 01.0 DEVELOP BASIC TRADE SKILLS--The student will be able to:
- 01.01 Organize shop and maintain tools.
 - 01.02 Identify safety skills.
 - 01.03 Develop measuring and weighing skills.
 - 01.04 Test and identify metals.
 - 01.05 Identify problems with quartz watches.
 - 01.06 Select and use hand tools and equipment.
 - 01.07 Demonstrate knowledge of the "FL Right-to-Know Law" as recorded in Florida Statutes, Chapter 442.
- 02.0 DEMONSTRATE SAFE USE OF BASIC TOOLS AND EQUIPMENT--The student will be able to:
- 02.01 Handle tools and equipment safely.
- 03.0 PERFORM SAWING, PIERCING, FILING AND CUTTING SKILLS--The student will be able to:
- 03.01 Identify appropriate sawing, piercing, filing and cutting skills.
- 04.0 SOLDER METALS--The student will be able to:
- 04.01 Select soldering equipment and hand tools.
 - 04.02 Select appropriate solder and flux.
 - 04.03 Solder metals.
- 05.0 PERFORM GENERAL REPAIR--The student will be able to:
- 05.01 Replace watch batteries, gaskets, band, pins and round watch crystals.
 - 05.02 Remove and replace watch stems.
 - 05.03 Repair and replace finding.
 - 05.04 Repair basic chain links.
- 06.0 PERFORM POLISHING TECHNIQUES--The student will be able to:
- 06.01 Buff metals using abrasives.
 - 06.02 Polish metals.
 - 06.03 Clean metals.
 - 06.04 Polish plastic crystals.
- 07.0 PERFORM BASIC MANAGEMENT SKILLS--The student will be able to:
- 07.01 Apply positive relations with employer or client.
 - 07.02 Identify and assess repairs.
- 08.0 IDENTIFY TIMEPIECES--The student will be able to:

- 08.01 Use standard references and computerized database to identify watch movements and replacement parts.
- 08.02 Describe timepiece parts and their functions.
- 09.0 DEMONSTRATE APPROPRIATE COMMUNICATION SKILLS--The student will be able to:
 - 09.01 Apply positive customer relations' skills.
 - 09.02 Write logical and understandable statements, or phrases, to accurately fill out forms/invoices commonly used in business and industry.
 - 09.03 Read and understand graphs, charts, diagrams, and tables commonly used in this industry/occupation area.
 - 09.04 Read and follow written and oral instructions.
 - 09.05 Answer and ask questions coherently and concisely.
 - 09.06 Read critically by recognizing assumptions and implications and by evaluating ideas.
 - 09.07 Demonstrate appropriate telephone/communication skills.
 - 09.08 Reinforce proper business ethics.
- 10.0 DEMONSTRATE APPROPRIATE MATH SKILLS--The student will be able to:
 - 10.01 Solve problems for volume, weight, area, circumference and perimeter measurements for rectangles, squares, and cylinders.
 - 10.02 Measure tolerance(s) on horizontal and vertical surfaces using millimeters, centimeters, feet and inches.
 - 10.03 Add, subtract, multiply and divide using fractions, decimals, and whole numbers.
 - 10.04 Determine the correct purchase price, to include sales tax and discounts.
 - 10.05 Demonstrate an understanding of federal, state and local taxes and their computation.
 - 10.06 Demonstrate an understanding of applied computer skills.
- 11.0 DEMONSTRATE APPROPRIATE UNDERSTANDING OF BASIC SCIENCE--The student will be able to:
 - 11.01 Demonstrate knowledge of metallurgy.
 - 11.02 Understand molecular action as a result of temperature extremes, chemical reaction, and moisture content.
- 12.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:
 - 12.01 Perform safety and health practices.
 - 12.02 Understand employment capabilities.
 - 12.03 Demonstrate appropriate work behavior.
 - 12.04 Project a professional image.
 - 12.05 Work individually and cooperatively as a member of regular or cultural diverse team.
 - 12.06 Utilize communication skills applicable to the industry.
 - 12.07 Balance personal and professional life.
 - 12.08 Use and conserve resources and energy.
 - 12.09 Locate and select employment opportunities.
 - 12.10 Demonstrate employment seeking skills.
 - 12.11 Use and conserve resources and energy.
- 13.0 DEMONSTRATE AN UNDERSTANDING OF ENTREPRENEURSHIP--The student will be able to:

- 13.01 Define entrepreneurship.
- 13.02 Describe the importance of entrepreneurship to the American economy.
- 13.03 List the advantages and disadvantages of business ownership.
- 13.04 Identify the risks involved in ownership of a business.
- 13.05 Identify the necessary personal characteristics of a successful entrepreneur.
- 13.06 Identify the business skills needed to operate a small business efficiently and effectively.
- 13.07 Adapt to change.

OCCUPATIONAL COMPLETION POINT - DATA CODE B

Jewelry Designer - SOC 51-9071.01

- 02.0 DEMONSTRATE SAFE USE OF BASIC TOOLS AND EQUIPMENT--The student will be able to:
 - 02.02 Operate polishing machine.
 - 02.03 Operate ultrasonic cleaning machine.
- 03.0 PERFORM SAWING, PIERCING, FILING AND CUTTING SKILLS--The student will be able to:
 - 03.02 Use sawing techniques.
 - 03.03 Use piercing techniques.
 - 03.04 Use filing techniques.
 - 03.05 Use cutting techniques.
- 04.0 SOLDER METALS--The student will be able to:
 - 04.04 Solder jewelry.
- 07.0 PERFORM BASIC MANAGEMENT SKILLS--The student will be able to:
 - 07.03 Prepare cost estimates and work orders.
 - 07.04 Maintain a shop production schedule.
 - 07.05 Maintain inventory.
 - 07.06 Explain impact of professional trade organizations on the industry.
- 11.0 DEMONSTRATE APPROPRIATE UNDERSTANDING OF BASIC SCIENCE--The student will be able to:
 - 11.03 Draw conclusions or make inferences from data.
 - 11.04 Identify health related problems that may result from exposure to work related chemicals and hazardous materials, and know the proper precautions required for handling such materials.
 - 11.05 Understand pressure measurement in terms of P.S.I., inches of mercury and K.P.A.
- 22.0 ROLL METAL AND WIRE--The student will be able to:
 - 22.01 Melt precious metals into ingots.
 - 22.02 Roll ingot into sheet metal wire.
 - 22.03 Construct a tubing wire.
- 23.0 DESIGN AND FABRICATE JEWELRY--The student will be able to:
 - 23.01 Design and fabricate jewelry using wire.
 - 23.02 Design and fabricate jewelry using jewelry metals.

OCCUPATIONAL COMPLETION POINT - DATE CODE C

Wax Modeler/Casting - SOC 51-9071.03

24.0 CAST JEWELRY--The student will be able to:

- 24.01 Identify types of casting methods.
- 24.02 Design and sculpture wax models and molds.
- 24.03 Cast jewelry pieces using lost wax process.

OCCUPATIONAL COMPLETION POINT - DATE CODE D

Jewelry Repairer - SOC 51-9071.04

05.0 PERFORM GENERAL REPAIRS--The student will be able to:

- 05.05 Analyze and perform advanced chain link repair.
- 05.06 Size ring.
- 05.07 Reshank ring.
- 05.08 Repair prong.
- 05.09 Repair hinge.

OCCUPATIONAL COMPLETION POINT - DATE CODE E

Stone Setter - SOC 51-9071.06

25.0 SET STONES--The student will be able to:

- 25.01 Test and identify stones.
- 25.02 Set stone in a pronged mounting.
- 25.03 Set stone in a bezel setting.
- 25.04 Set stone in a baguette setting.
- 25.05 Set stone in a pave setting.
- 25.06 Set stone in a peg setting.
- 25.07 Set stone in a tube setting.
- 25.08 Set stone in a channel setting.

OCCUPATIONAL COMPLETION POINT - DATE CODE F

Certified Jeweler/Gemologist - SOC 51-9071.00

09.0 DEMONSTRATE APPROPRIATE COMMUNICATION SKILLS--The student will be able to:

- 09.08 Reinforce proper business ethics.

26.0 APPLY SURFACE TREATMENT--The student will be able to:

- 26.01 Identify surface techniques.
- 26.02 Electroplate jewelry.
- 26.03 Perform diamond cutting.
- 26.04 Apply enamel to metal.
- 26.05 Apply repousse' and chasing techniques.
- 26.06 Apply engraving techniques.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Title: Clock, Watch, Jewelry Making and Repair Core 1
Course Number: 8745501
Course Credit: 1

COURSE DESCRIPTION: This course introduces student to the basic activities and principles of assisting in the clock, watch and jewelry technician assistant trade.

OCCUPATIONAL COMPLETION POINT - DATA CODE A

Clock, Watch and Jewelry Technician Assistant - SOC 49-9064

01.0 DEVELOP BASIC TRADE SKILLS--The student will be able to:

- 01.01 Organize shop and maintain tools.
- 01.02 Identify safety skills.
- 01.03 Develop measuring and weighing skills.
- 01.04 Test and identify metals.
- 01.05 Identify problems with quartz watches.
- 01.06 Select and use hand tools and equipment.
- 01.07 Demonstrate knowledge of the "FL Right-to-Know Law" as recorded in Florida Statutes, Chapter 442.

02.0 DEMONSTRATE SAFE USE OF BASIC TOOLS AND EQUIPMENT--The student will be able to:

- 02.01 Handle tools and equipment safely.

03.0 PERFORM SAWING, PIERCING, FILING AND CUTTING SKILLS--The student will be able to:

- 03.01 Identify appropriate sawing, piercing, filing and cutting skills.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Title: Clock, Watch, Jewelry Making and Repair Core 2
Course Number: 8745502
Course Credit: 1

COURSE DESCRIPTION: This course allows students to develop the basic skills using jewelry making tools and equipment.

OCCUPATIONAL COMPLETION POINT - DATA CODE A

Clock, Watch and Jewelry Technician Assistant - SOC 49-9064

- 04.0 SOLDER METALS--The student will be able to:
 - 04.01 Select soldering equipment and hand tools.
 - 04.02 Select appropriate solder and flux.
 - 04.03 Solder metals.

- 05.0 PERFORM GENERAL REPAIR--The student will be able to:
 - 05.01 Replace watch batteries, gaskets, band, pins and round watch crystals.
 - 05.02 Remove and replace watch stems.
 - 05.03 Repair and replace finding.
 - 05.04 Repair basic chain links.

- 06.0 PERFORM POLISHING TECHNIQUES--The student will be able to:
 - 06.01 Buff metals using abrasives.
 - 06.02 Polish metals.
 - 06.03 Clean metals.
 - 06.04 Polish plastic crystals.

- 07.0 PERFORM BASIC MANAGEMENT SKILLS--The student will be able to:
 - 07.01 Apply positive relations with employer or client.
 - 07.02 Identify and assess repairs.

- 08.0 IDENTIFY TIMEPIECES--The student will be able to:
 - 08.01 Use standard references and computerized database to identify watch movements and replacement parts.
 - 08.02 Describe timepiece parts and their functions.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Title: Clock, Watch, Jewelry Making and Repair Core 3
Course Number: 8745503
Course Credit: 1

COURSE DESCRIPTION: This course allows students to develop the basic trade skills of jewelry sawing, piercing, filing and cutting. Students are also introduced to the necessary communications, math, employability and entrepreneurship skills and knowledge.

OCCUPATIONAL COMPLETION POINT - DATA CODE A

Clock, Watch and Jewelry Technician Assistant - SOC 49-9064

09.0 DEMONSTRATE APPROPRIATE COMMUNICATION SKILLS--The student will be able to:

- 09.01 Apply positive customer relations' skills.
- 09.02 Write logical and understandable statements, or phrases, to accurately fill out forms/invoices commonly used in business and industry.
- 09.03 Read and understand graphs, charts, diagrams, and tables commonly used in this industry/occupation area.
- 09.04 Read and follow written and oral instructions.
- 09.05 Answer and ask questions coherently and concisely.
- 09.06 Read critically by recognizing assumptions and implications and by evaluating ideas.
- 09.07 Demonstrate appropriate telephone/communication skills.
- 09.08 Reinforce proper business ethics.

10.0 DEMONSTRATE APPROPRIATE MATH SKILLS--The student will be able to:

- 10.01 Solve problems for volume, weight, area, circumference and perimeter measurements for rectangles, squares, and cylinders.
- 10.02 Measure tolerance(s) on horizontal and vertical surfaces using millimeters, centimeters, feet and inches.
- 10.03 Add, subtract, multiply and divide using fractions, decimals, and whole numbers.
- 10.04 Determine the correct purchase price, to include sales tax and discounts.
- 10.05 Demonstrate an understanding of federal, state and local taxes and their computation.
- 10.06 Demonstrate an understanding of applied computer skills.

11.0 DEMONSTRATE APPROPRIATE UNDERSTANDING OF BASIC SCIENCE--The student will be able to:

- 11.01 Demonstrate knowledge of metallurgy.
- 11.02 Understand molecular action as a result of temperature extremes, chemical reaction, and moisture content.

12.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:

- 12.01 Perform safety and health practices.
- 12.02 Understand employment capabilities.
- 12.03 Demonstrate appropriate work behavior.

- 12.04 Project a professional image.
 - 12.05 Work individually and cooperatively as a member of regular or cultural diverse team.
 - 12.06 Utilize communication skills applicable to the industry.
 - 12.07 Balance personal and professional life.
 - 12.08 Use and conserve resources and energy.
 - 12.09 Locate and select employment opportunities.
 - 12.10 Demonstrate employment seeking skills.
 - 12.11 Use and conserve resources and energy.
- 13.0 DEMONSTRATE AN UNDERSTANDING OF ENTREPRENEURSHIP--The student will be able to:
- 13.01 Define entrepreneurship.
 - 13.02 Describe the importance of entrepreneurship to the American economy.
 - 13.03 List the advantages and disadvantages of business ownership.
 - 13.04 Identify the risks involved in ownership of a business.
 - 13.05 Identify the necessary personal characteristics of a successful entrepreneur.
 - 13.06 Identify the business skills needed to operate a small business efficiently and effectively.
 - 13.07 Adapt to change.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Title: Jewelry Making and Repair 4
Course Number: 8745504
Course Credit: 1

COURSE DESCRIPTION: This course trains students in the use of various tools and equipment necessary to solder metals and design and construct jewelry.

OCCUPATIONAL COMPLETION POINT - DATA CODE B

Jewelry Designer - SOC 51-9071.01

02.0 DEMONSTRATE SAFE USE OF BASIC TOOLS AND EQUIPMENT--The student will be able to:

- 02.02 Operate polishing machine.
- 02.03 Operate ultrasonic cleaning machine.

03.0 PERFORM SAWING, PIERCING, FILING AND CUTTING SKILLS--The student will be able to:

- 03.02 Use sawing techniques.
- 03.03 Use piercing techniques.
- 03.04 Use filing techniques.
- 03.05 Use cutting techniques.

04.0 SOLDER METALS--The student will be able to:

- 04.04 Solder jewelry.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Title: Jewelry Making and Repair 5
Course Number: 8745505
Course Credit: 1

COURSE DESCRIPTION: This course trains students in the use of various tools and equipment necessary to solder metals and design and construct jewelry.

OCCUPATIONAL COMPLETION POINT - DATA CODE B

Jewelry Designer - SOC 51-9071.01

07.0 PERFORM BASIC MANAGEMENT SKILLS--The student will be able to:

- 07.03 Prepare cost estimates and work orders.
- 07.04 Maintain a shop production schedule.
- 07.05 Maintain inventory.
- 07.06 Explain impact of professional trade organizations on the industry.

11.0 DEMONSTRATE APPROPRIATE UNDERSTANDING OF BASIC SCIENCE--The student will be able to:

- 11.03 Draw conclusions or make inferences from data.
- 11.04 Identify health related problems that may result from exposure to work related chemicals and hazardous materials, and know the proper precautions required for handling such materials.
- 11.05 Understand pressure measurement in terms of P.S.I., inches of mercury and K.P.A.

22.0 ROLL METAL AND WIRE--The student will be able to:

- 22.01 Melt precious metals into ingots.
- 22.02 Roll ingot into sheet metal wire.
- 22.03 Construct a tubing wire.

July 2007

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Title: Jewelry Making and Repair 6
Course Number: 8745506
Course Credit: 1

COURSE DESCRIPTION: This course trains students in the use of various tools and equipment necessary to solder metals and design and construct jewelry.

OCCUPATIONAL COMPLETION POINT - DATA CODE B

Jewelry Designer - SOC 51-9071.01

23.0 DESIGN AND FABRICATE JEWELRY--The student will be able to:

23.01 Design and fabricate jewelry using wire.

23.02 Design and fabricate jewelry using jewelry metals.

July 2007

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Title: Jewelry Making and Repair 7
Course Number: 8745507
Course Credit: 1

COURSE DESCRIPTION: This course trains students in the design and use of wax molds and models to cast jewelry.

OCCUPATIONAL COMPLETION POINT - DATE CODE C

Wax Modeler/Casting - SOC 51-9071.03

24.0 CAST JEWELRY--The student will be able to:

- 24.01 Identify types of casting methods.
- 24.02 Design and sculpture wax models and molds.
- 24.03 Cast jewelry pieces using lost wax process.

July 2007

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Title: Jewelry Making and Repair 8
Course Number: 8745508
Course Credit: 1

COURSE DESCRIPTION: This course trains students in the repair and rebuilding of jewelry.

OCCUPATIONAL COMPLETION POINT - DATE CODE D

Jewelry Repairer - SOC 51-9071.04

05.0 PERFORM GENERAL REPAIRS--The student will be able to:

05.05 Analyze and perform advanced chain link repair.

05.06 Size ring.

05.07 Reshank ring.

July 2007

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Title: Jewelry Making and Repair 9
Course Number: 8745509
Course Credit: 1

COURSE DESCRIPTION: This course trains students in the repair and rebuilding of jewelry.

OCCUPATIONAL COMPLETION POINT - DATE CODE D

Jewelry Repairer - SOC 51-9071.04

05.0 PERFORM GENERAL REPAIRS--The student will be able to:

05.08 Repair prong.

05.09 Repair hinge.

July 2007

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Title: Jewelry Making and Repair 10
Course Number: 8745510
Course Credit: 1

COURSE DESCRIPTION: This course trains students to identify, test and set gemstones.

OCCUPATIONAL COMPLETION POINT - DATE CODE E

Stone Setter - SOC 51-9071.06

25.0 SET STONES--The student will be able to:

- 25.01 Test and identify stones.
- 25.02 Set stones in a pronged mounting.
- 25.03 Set stones in a bezel setting.
- 25.04 Set stones in a baguette setting.
- 25.05 Set stones in a pave setting.
- 25.06 Set stones in a peg setting.
- 25.07 Set stones in a tube setting.
- 25.08 Set stones in a channel setting.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Course Title: Jewelry Making and Repair 11
Course Number: 8745511
Course Credit: 1

COURSE DESCRIPTION: This course trains students in jewelry business ethics, to cut gemstones and to apply various surface treatments to jewelry.

OCCUPATIONAL COMPLETION POINT - DATE CODE F

Certified Jeweler/Gemologist - SOC 51-9071.00

09.0 DEMONSTRATE APPROPRIATE COMMUNICATION SKILLS--The student will be able to:

09.08 Reinforce proper business ethics.

26.0 APPLY SURFACE TREATMENTS--The student will be able to:

- 26.01 Identify surface techniques.
- 26.02 Electroplate jewelry.
- 26.03 Perform diamond cutting.
- 26.04 Apply enamel to metal.
- 26.05 Apply repousse' and chasing techniques.
- 26.06 Apply engraving techniques.