



8768

EXPLORATION OF JEWELLERY/
METALSMITHING (9)

15S/15E/15M

10S/10E/10M

A Jewellery/Metalsmithing Course

8768: EXPLORATION OF JEWELLERY/ METALSMITHING (9) 15S/15E/15M AND 10S/10E/10M

Course Description

This is an **optional** half-credit or full-credit course. It is intended for students wishing to sample jewellery and metalsmithing. The curriculum content focuses on an exploration of basic skills including sawing, drilling, polishing, construction with sheet and wire, and lost wax casting with an emphasis on hands-on, project-based activities.

Goal 1: Describe and apply appropriate **safety and health** practices as they apply to the jewellery/metalsmithing trade.

GLO 1.1: Create and maintain a **safe workplace**.

- SLO 9.1.1.1: Follow safe practices and procedures related to facilities, processes, materials, tools, and equipment used in the jewellery studio.
 - SLO 9.1.1.2: Apply the principles of Workplace Hazardous Materials Information Systems (WHMIS) as they apply to the jewellery studio.
 - SLO 9.1.1.3: Describe hazards related to processes, materials, tools, and equipment used in the jewellery studio.
 - SLO 9.1.1.4: Follow the directions of the teacher/supervisor/employer in regard to safe work procedures.
 - SLO 9.1.1.5: Comply with the laws, regulations, and standards of regulatory agencies and industry associations regarding safety.
 - SLO 9.1.1.6: Locate first aid kit, eyewash station, fire extinguisher, fire blanket, and emergency power shut off switch.
 - SLO 9.1.1.7: Demonstrate ventilation procedures, and dust and smoke reduction procedures.
 - SLO 9.1.1.8: Demonstrate fire prevention and control strategies.
 - SLO 9.1.1.9: Describe emergency evacuation and response procedures.
 - SLO 9.1.1.10: Demonstrate safety zone markings and procedures.
 - SLO 9.1.1.11: Discuss hazards related to compressed gas.
 - SLO 9.1.1.12: Identify and report hazards (e.g., chemicals, electrical, ergonomics, material handling, spills, and equipment damage) related to tools, equipment, processes, and materials in studio.
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GLO 1.2: Create and maintain **safe and healthy workplace practices.**

- SLO 9.1.2.1: Explain the chemical points of entry into the body.
 - SLO 9.1.2.2: Describe and demonstrate appropriate personal protection (e.g., safety goggles/facemask, gloves, respirator mask, hair ties, apron, hearing protection).
 - SLO 9.1.2.3: Describe the injury reporting process.
 - SLO 9.1.2.4: Describe the use of fire blankets and fire extinguishers.
 - SLO 9.1.2.5: Describe the use of an eyewash station.
 - SLO 9.1.2.6: Demonstrate the ergonomic use of equipment and tools as it relates to bench tools and equipment operation.
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Goal 2: Demonstrate knowledge of the identification, and the safe and appropriate **operation, cleaning, maintenance, and management of equipment, tools, and materials.**

GLO 2.1: Demonstrate the **identification**, and the safe and appropriate **operation of equipment and tools.**

- SLO 9.2.1.1: Identify hand tools, power tools, equipment, and materials used in jewellery/metalsmithing.
 - SLO 9.2.1.2: Demonstrate the safe and appropriate operation of hand tools and equipment used in basic jewellery construction.
 - SLO 9.2.1.3: Demonstrate the safe and appropriate use of the polishing/buffing machines.
 - SLO 9.2.1.4: Demonstrate the safe and appropriate use of the flex-shaft.
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GLO 2.2: Demonstrate the appropriate cleaning, maintenance, and management of equipment and tools.

- SLO 9.2.1.1: Demonstrate the daily cleaning, maintenance, and management of equipment and tools as they pertain to the exploration of jewellery/metalsmithing.
 - SLO 9.2.2.2: Discuss the scheduled cleaning, maintenance, and management of equipment and tools as they pertain to the exploration of jewellery/metalsmithing.
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GLO 2.3: Demonstrate the appropriate **handling, storage, and management of materials.**

- SLO 9.2.1.1: Demonstrate the appropriate disposal and/or recycling of materials and supplies.
 - SLO 9.2.3.2: Demonstrate the appropriate storage of materials and supplies.
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Goal 3: Demonstrate an understanding of **metallurgy, gemmology, and the characteristics of jewellery materials.**

GLO 3.1: Demonstrate an understanding of **metallurgy.**

- SLO 9.3.1.1: Identify the ferrous and non-ferrous metals and their subgroups used in jewellery/metalsmithing.
 - SLO 9.3.1.2: Identify the terminology for descriptive characteristics and properties of metals as it pertains to the exploration of jewellery/metalsmithing.
 - SLO 9.3.1.3: Identify the characteristics of metals as introduced.
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GLO 3.2: Demonstrate an understanding of **gemmology.**

- SLO 9.3.2.1: Discuss the categories of gem material used in jewellery creation.
 - SLO 9.3.2.2: Discuss precautions and the appropriate care of gem materials.
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GLO 3.3: Demonstrate an understanding of the **characteristics of jewellery materials.**

- SLO 9.3.1.1: Demonstrate the principles of material characteristics in construction processes.
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Goal 4: Demonstrate knowledge of the creative **design** of jewellery.

GLO 4.1: Demonstrate knowledge of the creative **design** of jewellery.

- SLO 9.4.1.1: Identify the design problem.
 - SLO 9.4.1.2: Research the factors that influence design.
 - SLO 9.4.1.3: Recognize and apply the elements of design.
 - SLO 9.4.1.4: Identify the function of the design.
 - SLO 9.4.1.5: Identify the limitations of the materials.
 - SLO 9.4.1.6: Develop concept drawings for construction based on design criteria.
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Goal 5: Demonstrate an understanding of the **construction, casting, incorporation of components and gemstones, and production techniques** of jewellery creations.

GLO 5.1: Demonstrate the **construction techniques** used in creating jewellery from **sheet and wire**.

- SLO 9.5.1.1: Demonstrate the basic operation of tools and equipment used in jewellery construction using sheet and wire.
 - SLO 9.5.1.2: Demonstrate the safe and appropriate operation of the flex-shaft.
 - SLO 9.5.1.3: Demonstrate the safe and appropriate use of the pickle pot.
 - SLO 9.5.1.4: Demonstrate etching copper and brass with ferric chloride.
 - SLO 9.5.1.5: Demonstrate the forming of cuff bracelets on a bracelet mandrel and anvil.
 - SLO 9.5.1.6: Demonstrate the forming and production of jump-rings into simple chains.
 - SLO 9.5.1.7: Demonstrate wire forming with pliers.
 - SLO 9.5.1.8: Demonstrate the use of a bending brake.
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GLO 5.2: Demonstrate the **lost wax casting techniques** used in creating jewellery.

- SLO 9.5.2.1: Describe the lost wax casting process.
 - SLO 9.5.2.2: Discuss terminology related to tools, equipment, and techniques.
 - SLO 9.5.2.3: Demonstrate wax carving techniques and produce wax rings for casting.
 - SLO 9.5.2.4: Demonstrate attaching sprue for an individual wax model.
 - SLO 9.5.2.5: Discuss investing and using a vacuum machine.
 - SLO 9.5.2.6: Discuss the burnout schedule of flasks in a burnout oven.
 - SLO 9.5.2.7: Discuss the centrifugal casting technique.
 - SLO 9.5.2.8: Discuss the use of a torch and melting metal.
 - SLO 9.5.2.9: Discuss the post casting procedure with flasks and castings.
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GLO 5.3: Demonstrate the **construction** of jewellery incorporating components such as **handmade and commercial findings**.

- SLO 9.5.3.1: Define terminology for findings and jewellery items.
 - SLO 9.5.3.2: Demonstrate incorporation of findings into construction.
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GLO 5.4: Demonstrate **stone-setting techniques**.

No applicable SLOs.

GLO 5.5: Demonstrate **production techniques** in the construction of jewellery.

SLO 9.5.5.1: Define production and the benefits to trade.

SLO 9.5.5.2: Demonstrate the production process when cutting multiples of pattern pieces.

SLO 9.5.5.3: Demonstrate the organization of work for the finishing process.

Goal 6: Demonstrate an understanding of the **finishing, polishing, and textural techniques** of jewellery creation.

GLO 6.1: Demonstrate the **finishing techniques** of jewellery creation.

SLO 9.6.1.1: Identify the sequence of the finishing steps leading up to polishing.

SLO 9.6.1.2: Identify the tools and equipment used in finishing jewellery.

SLO 9.6.1.3: Demonstrate the sequence of finishing steps as they pertain to metal type, technique, and jewellery design.

GLO 6.2: Demonstrate the **polishing techniques** of jewellery creation.

SLO 9.6.2.1: Identify the sequence of polishing techniques.

SLO 9.6.2.2: Demonstrate the sequence of polishing techniques as they pertain to metal type, technique, and jewellery design.

SLO 9.6.2.3: Demonstrate the safe and appropriate operation of the cleaning equipment (e.g., ultra-sonic cleaner, steam cleaner).

GLO 6.3: Demonstrate the **textural finishing techniques** of jewellery creation.

SLO 9.6.3.1: Identify hand tools and techniques for texturing.

SLO 9.6.3.2: Demonstrate textural finishing techniques with hammers and chasing tools.

SLO 9.6.3.3: Discuss the use of a rolling mill for roller printing.

SLO 9.6.3.4: Demonstrate the use of burs/flex-shafts to engrave and texture metal.

SLO 9.6.3.5: Demonstrate the use of burs/flex-shafts to carve and texture wax.

SLO 9.6.3.6: Discuss the use of patinas.

Goal 7: Demonstrate knowledge of the **adjustment, modification, and repair** of jewellery.

GLO 7.1: Demonstrate an awareness of situations which require jewellery to be **adjusted, modified, or repaired**.

SLO 9.7.1.1: Identify situations in which jewellery would require adjustments, modifications, or repairs.

GLO 7.2: Adjust jewellery.

SLO 9.7.2.1: Recognize and apply simple adjustments to the design and function of jewellery creations.

GLO 7.3: Modify jewellery.

SLO 9.7.3.1: Identify and apply simple modifications to the design and function of jewellery creations.

GLO 7.4: Repair jewellery.

SLO 9.7.4.1: Identify repair techniques related to jewellery creations.

Goal 8: Demonstrate an understanding of the transferable, **cross-curricular** knowledge and skills as they pertain to the jewellery trade.

GLO 8.1: Read, interpret, and communicate.

SLO 9.8.1.1: Read and identify project specifications.

SLO 9.8.1.2: Read and identify technical information.

SLO 9.8.1.3: Discuss the interpretation of investment/water ratio charts.

SLO 9.8.1.4: Discuss the alloy chart as pertaining to jewellery metals.

GLO 8.2: Apply **mathematics** knowledge and skills relevant to jewellery/metalsmithing.

SLO 9.8.2.1: Define units of measurement and tools relevant to the jewellery trade (e.g., metric and imperial measurements, weights and volumes, gauges).

SLO 9.8.2.2: Discuss formulas for determining weights of casting materials.

SLO 9.8.2.3: Discuss material costs.

GLO 8.3: Apply **science** knowledge and skills relevant to jewellery/metalsmithing.

SLO 9.8.3.1: Discuss specific gravities of metal.

SLO 9.8.3.2: Reference the alloy chart for metals.

SLO 9.8.3.3: Discuss metal expansion and contraction as related to melting and working properties of metal.

SLO 9.8.3.4: Discuss the formation of oxides.

GLO 8.4: Apply **arts** knowledge and skills relevant to jewellery/metalsmithing.

SLO 9.8.4.1: Demonstrate the creation of a design for project use.

SLO 9.8.4.2: Discuss and apply design elements.

GLO 8.5: Apply **other subject areas** knowledge and skills relevant to jewellery/metalsmithing (art, physical education/health education, information communication and technology, social studies).

SLO 9.8.5.1: Demonstrate the use of Internet for design development and technical information.

Goal 9: Demonstrate an understanding of **career opportunities** in the jewellery trade and associated professions.

GLO 9.1: Describe education and **career opportunities, and professional organizations** in the jewellery trade and associated professions.

SLO 9.9.1.1: Discuss education and career opportunities in the jewellery trade and associated professions.

Goal 10: Demonstrate awareness of **sustainability** as it pertains to the jewellery trade.

GLO 10.1: Describe the impact of **sustainability** on the health and well-being of metalsmiths and their clients.

- SLO 9.10.1.1: Identify ergonomics and repetitive movement strains.
 - SLO 9.10.1.2: Discuss sustainability as it relates to the human health and well-being of jewellers/metalsmiths and their clients.
 - SLO 9.10.1.3: Discuss the impact on health of metal and material allergies, dust, and toxicities.
 - SLO 9.10.1.4: Demonstrate the proper use of equipment and tools to prevent repetitive strain injuries—ergonomics.
 - SLO 9.10.1.5: Discuss the purposes of jewellery in regard to history, trade, personal wealth, culture, and personal statements and celebrations.
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GLO 10.2: Describe the trade's **sustainability practices** and impact on the environment.

- SLO 9.10.2.1: Discuss the trade's sustainability practices and impact on the environment.
 - SLO 9.10.2.2: Describe and apply the efficient use and disposal of materials.
 - SLO 9.10.2.3: Discuss chemical hazards on the environment.
 - SLO 9.10.2.4: Demonstrate a basic knowledge of efficient material usage to reduce waste and its impact on the environment.
 - SLO 9.10.2.5: Discuss the recycling process for materials related to the jewellery trade.
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GLO 10.3: Describe **sustainable business practices** within the jewellery trade.

- SLO 9.10.3.1: Discuss sustainable business practices within the jewellery trade.
 - SLO 9.10.3.2: Discuss the changing world market value of metals and materials.
 - SLO 9.10.3.3: Discuss lifelong learning of trends, fashion, and technology.
 - SLO 9.10.3.4: Discuss the changing demographics regarding supply area, use of Internet shopping, and sales.
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Goal 11: Demonstrate **awareness of the ethical and legal standards** as they pertain to the jewellery trade.

GLO 11.1: Practise the **ethical and legal standards** as they pertain to the jewellery trade.

SLO 9.11.1.1: Discuss the ethical and legal standards as they pertain to the jewellery trade.

SLO 9.11.1.2: Discuss ethical mining practices for metals and gemstones.

SLO 9.11.1.3: Discuss the history and ethics of gemmology and gem use in the jewellery trade.

Goal 12: Demonstrate knowledge of the **employability skills** related to the jewellery trade.

GLO 12.1: Demonstrate the **fundamental employability skills**.

SLO 9.12.1.1: Demonstrate problem-solving skills.

SLO 9.12.1.2: Demonstrate critical-thinking skills.

SLO 9.12.1.3: Demonstrate regular attendance and punctuality.

SLO 9.12.1.4: Demonstrate accountability by taking responsibility for one's actions.

SLO 9.12.1.5: Demonstrate adaptability, initiative, and effort.

SLO 9.12.1.6: Demonstrate the ability to accept and follow direction and feedback.

SLO 9.12.1.7: Demonstrate teamwork skills.

SLO 9.12.1.8: Demonstrate the ability to stay on task and use class and studio time effectively.

SLO 9.12.1.9: Demonstrate the ability to communicate respectfully and effectively with co-workers and customers.

SLO 9.12.1.10: Demonstrate the ability to maintain an organized work area and use equipment, tools, and materials respectfully.

SLO 9.12.1.11: Demonstrate appropriate dress for safe work with equipment and tools.

GLO 12.2: Demonstrate an understanding of the **business operation** of a jewellery/metalsmithing trade.

SLO 9.12.2.1: Discuss the overhead costs of producing jewellery.

SLO 9.12.2.2: Discuss the market cost of metals and influences.

Goal 13: Understand the **evolution and technological progression of, and the emerging trends in** the jewellery/metalsmithing trade.

GLO 13.1: Describe the **evolution and technological progression of, and the emerging trends in** the jewellery trade.

SLO 9.13.1.1: Discuss the evolution and technological progression of, and the emerging trends in the jewellery trade.

SLO 9.13.1.2: Demonstrate the use of new technology as introduced in the studio.
