



8769

INTRODUCTION TO JEWELLERY/
METALSMITHING (10)

20S/20E/20M

A Jewellery/Metalsmithing Course

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Course Description

This course is intended for students wishing to investigate jewellery and metalsmithing. The curriculum content focuses on a more advanced exploration of basic skills, as well as riveting and simple stone setting 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 10.1.1.1: Follow safe practices and procedures related to facilities, processes, materials, tools, and equipment used in the jewellery studio.
 - SLO 10.1.1.2: Apply the principles of Workplace Hazardous Materials Information Systems (WHMIS) as they apply to the jewellery studio.
 - SLO 10.1.1.3: Describe hazards related to processes, materials, tools, and equipment used in the jewellery studio.
 - SLO 10.1.1.4: Follow the directions of the teacher/supervisor/employer in regard to safe work procedures.
 - SLO 10.1.1.5: Comply with the laws, regulations, and standards of regulatory agencies and industry associations regarding safety.
 - SLO 10.1.1.6: Locate first aid kit, eyewash station, fire extinguisher, fire blanket, and emergency power shut off switch.
 - SLO 10.1.1.7: Demonstrate ventilation procedures, and dust and smoke reduction procedures.
 - SLO 10.1.1.8: Demonstrate fire prevention and control strategies.
 - SLO 10.1.1.9: Describe emergency evacuation and response procedures.
 - SLO 10.1.1.10: Demonstrate safety zone markings and procedures.
 - SLO 10.1.1.11: Discuss hazards related to compressed gas.
 - SLO 10.1.1.12: 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 10.1.2.1: Explain the chemical points of entry into the body.
- SLO 10.1.2.2: Describe and demonstrate appropriate personal protection (e.g., safety goggles/facemask, gloves, respirator mask, hair ties, apron, hearing protection).
- SLO 10.1.2.3: Describe the injury reporting process.
- SLO 10.1.2.4: Describe the use of fire blankets and fire extinguishers.
- SLO 10.1.2.5: Describe the use of an eyewash station.
- SLO 10.1.2.6: Demonstrate the ergonomic use of equipment and tools as it relates to bench tools and equipment operation.

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 10.2.1.1: Identify hand tools, power tools, equipment, and materials used in jewellery/metalsmithing.
- SLO 10.2.1.2: Demonstrate the safe and appropriate operation of hand tools and equipment used in the introduction to jewellery construction.
- SLO 10.2.1.3: Demonstrate the safe and appropriate use of the polishing/buffing machines.
- SLO 10.2.1.4: Demonstrate the safe and appropriate use of the flex-shaft.

GLO 2.2: Demonstrate the appropriate cleaning, maintenance, and management of equipment and tools.

- SLO 10.2.2.1: Demonstrate the daily cleaning, maintenance, and management of equipment and tools as they pertain to the introduction to jewellery/metalsmithing.
- SLO 10.2.2.2: Discuss the scheduled cleaning, maintenance, and management of equipment and tools as they pertain to the introduction to jewellery/metalsmithing.

GLO 2.3: Demonstrate the appropriate **handling, storage, and management of materials.**

- SLO 10.2.3.1: Demonstrate the appropriate disposal and/or recycling of materials and supplies.
 - SLO 10.2.3.2: 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 10.3.1.1: Discuss the ferrous and non-ferrous metals and their subgroups used in jewellery/metalsmithing.

SLO 10.3.1.2: Discuss the terminology for descriptive characteristics and properties of metals as it pertains to the introduction to jewellery/metalsmithing.

SLO 10.3.1.3: Discuss the characteristics of metals as introduced.

GLO 3.2: Demonstrate an understanding of **gemmology.**

SLO 10.3.2.1: Discuss the categories of gem material used in jewellery creation.

SLO 10.3.2.2: Demonstrate precautions and the appropriate care of gem materials.

GLO 3.3: Demonstrate an understanding of the **characteristics of jewellery materials.**

SLO 10.3.3.1: Demonstrate the principles of material characteristics in construction processes.

Goal 4: Demonstrate knowledge of the creative **design of jewellery.**

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

SLO 10.4.1.1: Identify the design problem.

SLO 10.4.1.2: Research the factors that influence design.

SLO 10.4.1.3: Recognize and apply the elements of design.

SLO 10.4.1.4: Identify the function of the design.

SLO 10.4.1.5: Identify the limitations of the materials.

SLO 10.4.1.6: Develop concept drawings for construction based on design criteria.

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 10.5.1.1: Demonstrate the basic operation of tools and equipment used in jewellery construction using sheet and wire.
 - SLO 10.5.1.2: Demonstrate the safe and appropriate operation of the flex-shaft.
 - SLO 10.5.1.3: Demonstrate the application of standard rivets.
 - SLO 10.5.1.4: Demonstrate tab construction and cold connections.
 - SLO 10.5.1.5: Discuss the safe and appropriate use of the pickle pot.
 - SLO 10.5.1.6: Demonstrate the ability to etch copper and brass with ferric chloride.
 - SLO 10.5.1.7: Demonstrate the forming and production of jump-rings into complex chain constructions.
 - SLO 10.5.1.8: Demonstrate wire forming with pliers and incorporating other objects into designs.
 - SLO 10.5.1.9: Demonstrate the forging of wire with hammers.
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GLO 5.2: Demonstrate the **lost wax casting techniques** used in creating jewellery.

- SLO 10.5.2.1: Describe the lost wax casting process.
 - SLO 10.5.2.2: Discuss terminology related to tools, equipment, and techniques.
 - SLO 10.5.2.3: Demonstrate wax carving techniques to produce wax models of rings and pendants for casting.
 - SLO 10.5.2.4: Demonstrate attaching sprue for an individual wax model.
 - SLO 10.5.2.5: Discuss investing and using a vacuum machine.
 - SLO 10.5.2.6: Discuss the burnout schedule of flask in a burnout oven.
 - SLO 10.5.2.7: Discuss the centrifugal casting technique.
 - SLO 10.5.2.8: Discuss the use of a torch and melting metal.
 - SLO 10.5.2.9: 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 10.5.3.1: Define terminology for findings and jewellery items.
 - SLO 10.5.3.2: Demonstrate incorporation of findings into construction.
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GLO 5.4: Demonstrate **stone-setting techniques**.

SLO 10.5.4.1: Demonstrate setting of cabochon stones using tabs.

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

SLO 10.5.5.1: Define production and the benefits to trade.

SLO 10.5.5.2: Demonstrate the production process when cutting multiples of pattern pieces.

SLO 10.5.5.3: 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 10.6.1.1: Identify the sequence of the finishing steps leading up to polishing.

SLO 10.6.1.2: Identify the tools and equipment used in finishing jewellery.

SLO 10.6.1.3: 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 10.6.2.1: Identify the sequence of polishing techniques.

SLO 10.6.2.2: Demonstrate the sequence of polishing techniques as they pertain to metal type, technique, and jewellery design.

SLO 10.6.2.3: 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 10.6.3.1: Identify hand tools and techniques for texturing.

SLO 10.6.3.2: Demonstrate textural finishing techniques with hammers and chasing tools.

SLO 10.6.3.3: Discuss the use of a rolling mill for roller printing.

SLO 10.6.3.4: Demonstrate the use of burs/flex-shaft to engrave and texture metal.

SLO 10.6.3.5: Demonstrate the use of burs/flex-shaft to carve and texture wax.

SLO 10.6.3.6: 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 10.7.1.1: Identify situations in which jewellery would require adjustments, modifications, or repairs.

GLO 7.2: Adjust jewellery.

SLO 10.7.2.1: Recognize and apply simple adjustments to the design and function of jewellery creations.

GLO 7.3: Modify jewellery.

SLO 10.7.3.1: Identify and apply simple modifications to the design and function of jewellery creations.

GLO 7.4: Repair jewellery.

SLO 10.7.4.1: 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 10.8.1.1: Read and identify project specifications.

SLO 10.8.1.2: Read and identify technical information.

SLO 10.8.1.3: Discuss the interpretation of investment/water ratio charts.

SLO 10.8.1.4: Demonstrate the ability to read an alloy chart.

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

SLO 10.8.2.1: Define units of measurement and tools relevant to the jewellery trade (e.g., metric and imperial measurements, weights and volumes, gauges).

SLO 10.8.2.2: Discuss formulas for determining weights of casting materials.

SLO 10.8.2.3: Discuss material costs.

SLO 10.8.2.4: Demonstrate the use of basic geometry.

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

SLO 10.8.3.1: Discuss specific gravities of metal.

SLO 10.8.3.2: Reference the alloy chart for metals.

SLO 10.8.3.3: Discuss metal expansion and contraction as related to melting and working properties of metal.

SLO 10.8.3.4: Discuss the formation of oxides.

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

SLO 10.8.4.1: Demonstrate the creation of a design for project use.

SLO 10.8.4.2: 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 10.8.5.1: 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 10.9.1.1: 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 10.10.1.1: Identify ergonomics and repetitive movement strains.
 - SLO 10.10.1.2: Discuss sustainability as it relates to the human health and well-being of jewellers/metalsmiths and their clients.
 - SLO 10.10.1.3: Discuss the impact on health of metal and material allergies, dust, and toxicities.
 - SLO 10.10.1.4: Demonstrate the proper use of equipment and tools to prevent repetitive strain injuries—ergonomics.
 - SLO 10.10.1.5: 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 10.10.2.1: Discuss the trade's sustainability practices and impact on the environment.
 - SLO 10.10.2.2: Describe and apply the efficient use and disposal of materials.
 - SLO 10.10.2.3: Discuss chemical hazards on the environment.
 - SLO 10.10.2.4: Demonstrate a basic knowledge of efficient material usage to reduce waste and its impact on the environment.
 - SLO 10.10.2.5: 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 10.10.3.1: Discuss sustainable business practices within the jewellery trade.
 - SLO 10.10.3.2: Discuss the changing world market value of metals and materials.
 - SLO 10.10.3.3: Discuss lifelong learning of trends, fashion, and technology.
 - SLO 10.10.3.4: 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 10.11.1.1: Discuss the ethical and legal standards as they pertain to the jewellery trade.

SLO 10.11.1.2: Discuss ethical mining practices for metals and gemstones.

SLO 10.11.1.3: 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 10.12.1.1: Demonstrate problem-solving skills.

SLO 10.12.1.2: Demonstrate critical-thinking skills.

SLO 10.12.1.3: Demonstrate regular attendance and punctuality.

SLO 10.12.1.4: Demonstrate accountability by taking responsibility for one's actions.

SLO 10.12.1.5: Demonstrate adaptability, initiative, and effort.

SLO 10.12.1.6: Demonstrate the ability to accept and follow direction and feedback.

SLO 10.12.1.7: Demonstrate teamwork skills.

SLO 10.12.1.8: Demonstrate the ability to stay on task and use class and studio time effectively.

SLO 10.12.1.9: Demonstrate the ability to communicate respectfully and effectively with co-workers and customers.

SLO 10.12.1.10: Demonstrate the ability to maintain an organized work area and use equipment, tools, and materials respectfully.

SLO 10.12.1.11: 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 10.12.2.1: Discuss the overhead costs of producing jewellery.

SLO 10.12.2.2: 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 10.13.1.1: Discuss the evolution and technological progression of, and the emerging trends in the jewellery trade.

SLO 10.13.1.2: Demonstrate the use of new technology as introduced in the studio.
