

QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR GEMS & JEWELLERY INDUSTRY

What are Occupational Standards(OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

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Contents

1. Introduction and Contact.....P1
2. Qualifications PackP2
3. OS Units..... P3
4. Glossary of Key Terms.....P74
5. Nomenclature of QP & NOS.....P76

Introduction

Qualifications Pack-Master Maker (Hand)

SECTOR: GEMS & JEWELLERY

SUB-SECTOR: Handmade gold and gems-set jewellery

OCCUPATION: Designing

REFERENCE ID: G&J/Q0501

ALIGNED TO: NCO-2004/NIL

Master maker (hand): The master maker's is the most creative job role in the jewellery manufacturing sector.

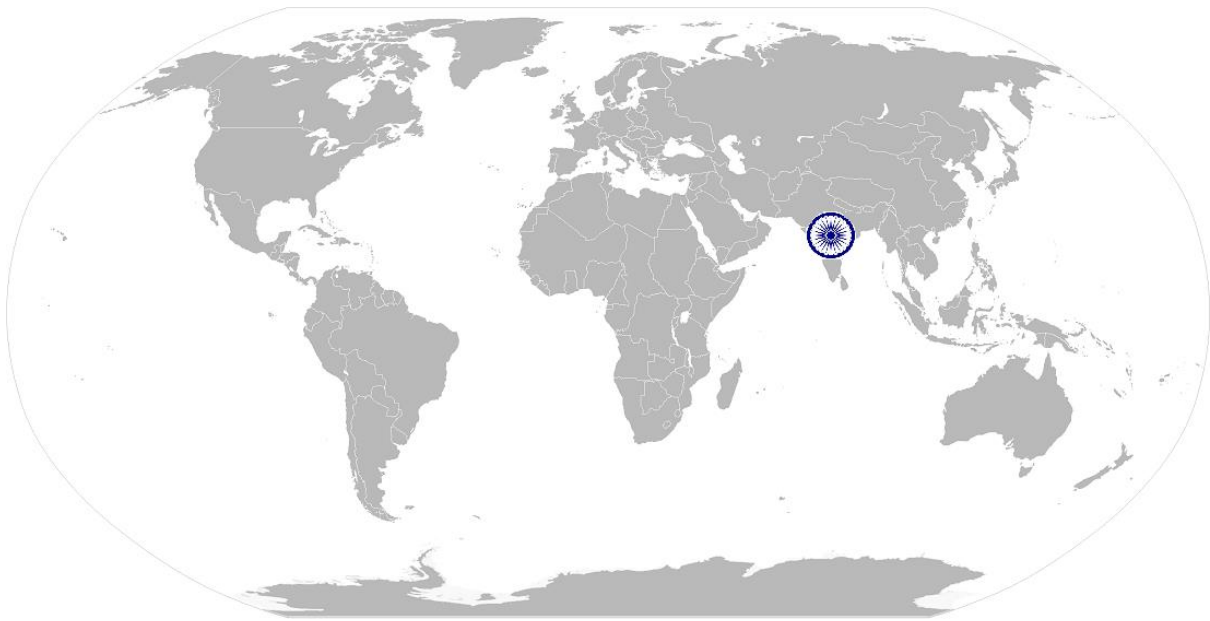
Brief Job Description: The individual at work creates actual master pieces of the jewellery design – complete with frame, components, finishing, setting and embellishing – for replication into another or multiple jewellery pieces.

Personal Attributes: The job requires the individual to have: creativity; attention to details; good eyesight; steady hands; ability to work for long hours in sitting position; and a lot of patience.

Qualifications Pack Code	G&J/Q0501		
Job Role	Master maker (Hand)		
Credits(NSQF)	TBD	Version number	1.0
Sector	Gems & Jewellery	Drafted on	24/08/13
Sub-sector	Handmade and Gems-set Jewellery	Last reviewed on	13/08/14
Occupation	Designing	Next review date	12/08/15

Job Role	Master maker (Hand)
Role Description	Converting precious metal bar into master jewellery piece adorned with components, gemstones or embellishments as per the design specifications, using hand and machine tools – for use as the master for subsequent jewellery production
NVEQF/NVQF level	5
Minimum Educational Qualifications	Preferably 10 th Standard passed
Maximum Educational Qualifications	
Training	Not Applicable
Experience	Minimum 5 years in Basic Gold smithy and Hand-sketch design
Applicable National Occupational Standards (NOS)	<p>Compulsory:</p> <ol style="list-style-type: none"> G&J/N2301 Draw jewellery designs G&J/N0601 Draw wire or strip from precious metal or alloy bar G&J/N0602 Make ball from precious metal or alloy G&J/N0603 Stamp the gold sheet G&J/N0604 Make gold chain G&J/N0605 Make the jewellery frame of gold or alloy G&J/N0802 Set gemstones on jewellery frame G&J/N9910 Maintain IPR and respect copyright G&J/N9912 Coordinate with co-workers G&J/N9914 Maintain safe work environment <p>Optional:</p> <ol style="list-style-type: none"> G&J/N0903 Use embossing technique to make jewellery components from precious metals G&J/N0902 Paint with enamel colours on jewellery frame G&J/N0904 Make components, frame, Kundan (24K gold) and Silver foils G&J/N0803 Set gemstones using Jadau technique and string
Performance Criteria	As described in the relevant OS units

National Occupational Standard



Overview

This unit is about manually drawing by hand, basic version of jewellery designs.

G&J/N2301

Draw jewellery designs

Unit Code	G&J/N2301
Unit Title (Task)	Draw jewellery designs
Description	This OS unit is about manually drawing basic version of jewellery designs
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Receive or procure jewellery design concepts and instructions • Draw basic jewellery designs • Return prepared designs to merchandiser and/or product development head • Manage data • Report problems related in time
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Drawing jewellery designs	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Receive or procure jewellery design concepts and instructions from customers, merchandiser, marketing department and product development head</p> <p>PC2. Receive or procure jewellery design concepts and instructions from various jewellery design publications, exhibitions, internet, websites of prominent jewellery companies, etc.</p> <p>PC3. read design concepts and instructions in terms of size, dimensions, shapes, materials</p> <p>PC4. draw basic shapes of jewellery designs</p> <p>PC5. identify different textures and shapes of jewellery designs</p> <p>PC6. prepare designs considering cut and shape of diamond and stone</p> <p>PC7. generate working designs highlighting with specific colours dimensioning</p> <p>PC8. provide basic information related to what the item is (e.g., bangle) and details of the drawing such as overall dimensions, diamonds and stones to be set (e.g., numbers, sizes, types)</p> <p>PC9. draw clear sketches, detailed drawings, illustrations, artwork, or blueprints, using drawing stationary</p> <p>PC10. indicate accurate detailing of stages of development showing cut and shape of diamond and stone</p> <p>PC11. provide accurate information and data provided on overall dimensions of diamond and stones in terms of number, size and type</p> <p>PC12. create a number of new designs</p>
Achieving productivity and maintaining data records	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC13. self-check each design in terms of dimensions and clarity</p> <p>PC14. ensure timely delivery of the required number of approved designs</p> <p>PC15. deliver jewellery designs in time</p> <p>PC16. create number of successful designs prepared as per target given</p> <p>PC17. create defect free output</p>

G&J/N2301

Draw jewellery designs

	<p>PC18. store files and folder</p> <p>PC19. present designs to merchandiser and/or product development manager and after their approval transfer design to cad designer</p>
Quality of output	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC20. inform about complexity of designs/concepts and related practical difficulties</p> <p>PC21. identify reasons for anticipated delays that may adversely affect delivery</p> <p>PC22. maintain look of the design for the design concept provided</p> <p>PC23. create well balanced designs based on inputs from marketing and product development</p>
Knowledge and Understanding (K)	
A. Organizational Context	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. company's policies on: quality, delivery timelines, safety and hazards, integrity and IPR, and personnel management</p> <p>KA2. importance of the individual's role in the workflow</p> <p>KA3. reporting structure</p>
B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. how to use computers and software such as ms office, internet, etc.</p> <p>KB2. the principles of technical drawing of jewellery shapes</p> <p>KB3. different type of jewellery products rings, bracelets, pendants, etc.</p> <p>KB4. different types of diamonds and stones, colours, cuts, shapes and settings</p> <p>KB5. utility of designs in terms of daily wear, occasional, safe</p>
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Basic reading and writing skills
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. read notes, designs and instructions in terms of design concepts</p> <p>SA2. read company rules and compliance documents required to complete the work</p>
	Calculation and Geometry skills
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA3. count the number of diamonds and stones</p> <p>SA4. assess accuracy of alignment and measure symmetry</p> <p>SA5. make basic calculations and angles measurement in design</p>
	Teamwork
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA6. deliver the designs to next work process on time</p>
B. Professional Skills	Creative thinking
	<p>The user/individual on the job needs to know and understand:</p> <p>SB1. jewellery types and design details</p>

G&J/N2301

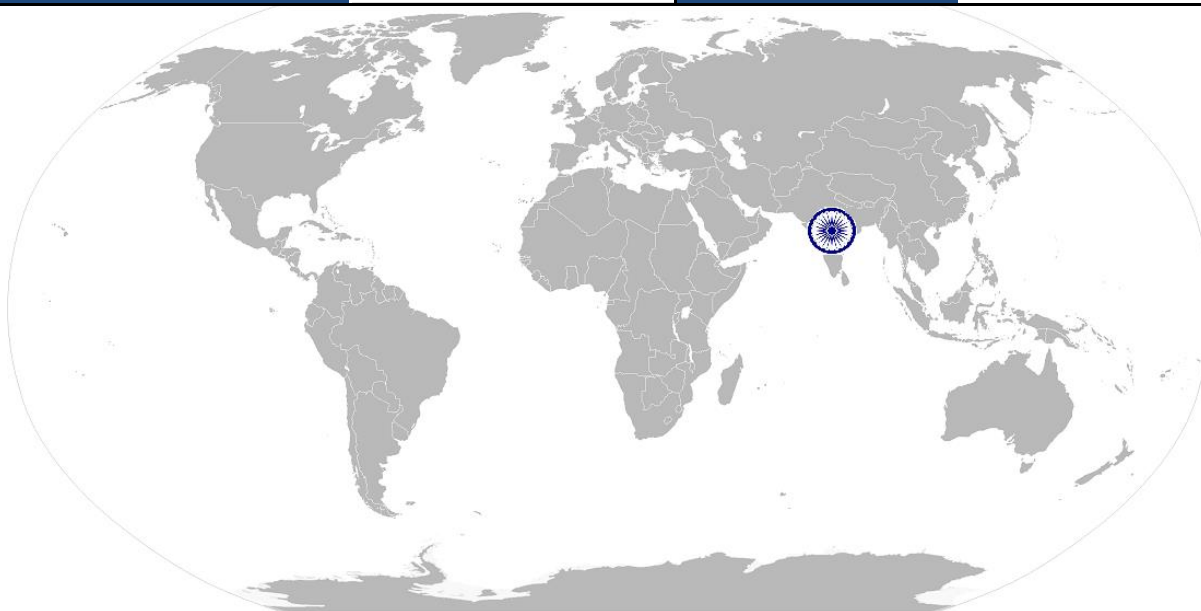
Draw jewellery designs

	SB2. How to translate ideas or concepts into designs
	Using tools and machines
	The user/individual on the job needs to know and understand how: SB3. to use the drawing stationary and measuring tools such as pencils, eraser, scale, set squares, compass, different type of papers, tracing sheets, etc.
	Reflective thinking
	The user/individual on the job needs to know and understand how to: SB4. improve ratio of successful designs SB5. plan for creating design to be able to improve productivity SB6. work in sitting or standing for long hours position with correct posture SB7. make necessary design changes for practicality of the jewellery designs
	Critical thinking
	The user/individual on the job needs to know and understand how to: SB8. anticipate process disruption and reasons for delay



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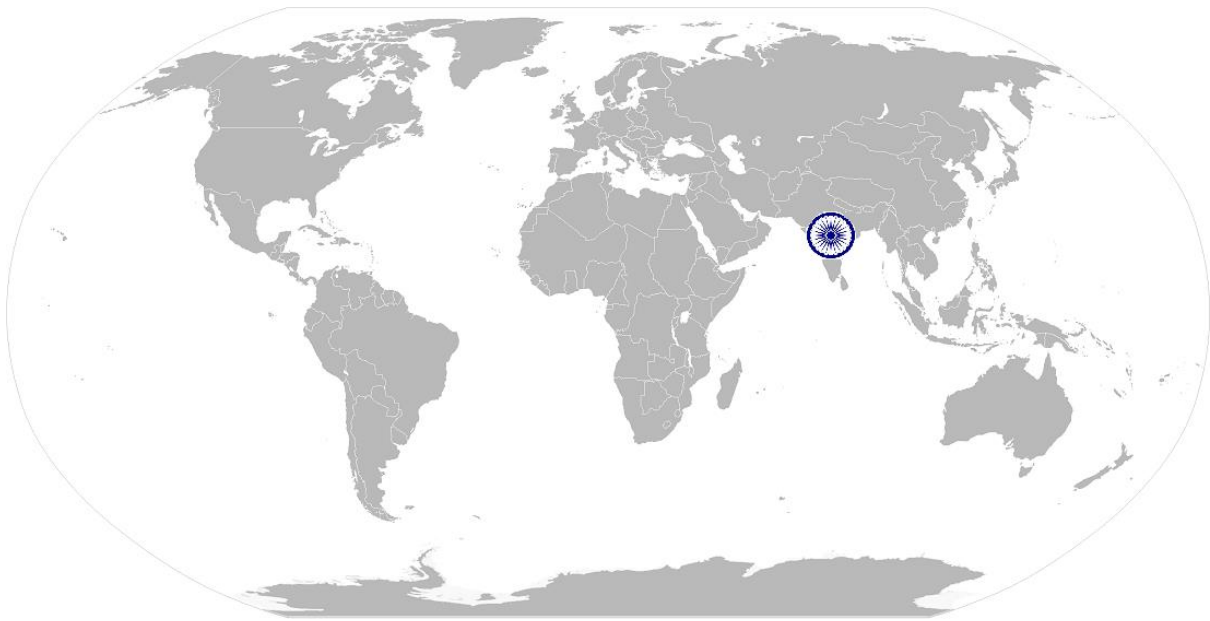
NOS Code	G&J/N2301		
Credits(NSQF)	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	24/08/13
Industry Sub-sector	Cast and Diamond-set Jewellery	Last reviewed on	13/08/14
Occupation	Designing	Next review date	12/08/15



G&J/N0601

Draw wire or strip from precious metal or alloy bar

National Occupational Standard



Overview

This unit is one of the basic activities in jewellery making. It is about drawing wire from gold bar, which is used for making earrings, necklaces, rings and bracelets. The wire plays a critical role in connecting the jewellery parts and in completing the jewellery.

G&J/N0601

Draw wire or strip from precious metal or alloy bar

Unit Code	G&J/N0601
Unit Title (Task)	Draw wire or strip from bars of precious metal or alloy
Description	This OS unit is about drawing gold wire for use in jewellery making.
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Order precious metal or alloy for making wire or strip • Draw the wire and strip • Anneal the wire or strip for malleability • Control precious metal loss • Detect product defects and return completed wire to supervisor • Report problems in time
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Making wire or strip	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. understand specifications in terms of required thickness of wire to be drawn as per design</p> <p>PC2. assess quantity of precious metal required for drawing the wire or rolling the strip</p> <p>PC3. roll metal to the appropriate thickness using wire drawing or rolling machine</p> <p>PC4. sharpen one end of the metal to ease the pass through of the metal in draw-plate hole</p> <p>PC5. push the metal through the draw-plate hole and then pull out</p> <p>PC6. repeat the process through consecutive small holes to get the required thickness of wire</p> <p>PC7. pass metal through roller machine or mill to make into strips of appropriate thickness</p> <p>PC8. assess whether the wire or strip type (e.g., spring) requires annealing</p> <p>PC9. treat the wire or strip with heat using gas torch or furnace</p> <p>PC10. set temperature according to the thickness of the wire or strip</p> <p>PC11. remove the wire or strip from heat and quench in water to cool immediately</p> <p>PC12. repeat the heating and cooling process after every drawing or rolling</p> <p>PC13. make wire of required thickness and evenness, not over drawn or split or cracked</p> <p>PC14. limit precious-metal loss of damaged metal rod or wire</p> <p>PC15. deliver in time, the wires to supervisor</p> <p>PC16. meet productivity target</p> <p>PC17. complete work with minimum hazards and accidents</p>
Controlling gold loss	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC18. collect precious metal dust or fragments dispersed during the day</p> <p>PC19. tally account as per allowed standards for wire making</p>

G&J/N0601

Draw wire or strip from precious metal or alloy bar

	PC20. conduct regular cleaning for collection of gold as per company policy
Checking quality and handling problems	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC21. identify the type of defect, e.g., damaged beyond repair</p> <p>PC22. handover defective wire to supervisor for melting or use elsewhere</p> <p>PC23. rework on any quality check feedback and return</p> <p>PC24. report roll machine failure</p> <p>PC25. inform about tools shortage and their maintenance related issues</p> <p>PC26. identify reasons for anticipated delays that may adversely affect delivery</p> <p>PC27. report malfunction of annealing torch or furnace</p> <p>PC28. report poor quality of gold received</p> <p>PC29. deliver complete components on time by reporting well in advance, any problems faced or anticipated</p>
Knowledge and Understanding (K)	
C. Organizational Context (Knowledge of the company / organization and its processes)	<p>The individual on the job needs to know and understand:</p> <p>KA1. company's policies on: Acceptable limits of precious metal loss per product type; delivery timelines; safety and hazards; security; and personnel management</p> <p>KA2. work flow involved in company's jewellery manufacturing process, i.e., from one goldsmith to another</p> <p>KA3. importance of the individual's role in the workflow</p> <p>KA4. reporting structure</p>
B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. uses of different types of tools used in wire drawing such as ruler, draw plates, pliers, hammer, bench block, cup bur, cutter</p> <p>KB2. different types of draw plates</p> <p>KB3. precious-metal or gold alloy properties such as strength and malleability</p> <p>KB4. heat treatments and intensity effect with respect to different types of gold alloys, e.g., 18K gold requires less annealing than 10K or springs need different treatment than annealing</p> <p>KB5. potential work hazards, particularly, when using hand and machine tools</p>
Skills (S) [Optional]	
C. Core Skills/ Generic Skills	Basic reading and writing skills
	<p>The user/individual on the job needs to know and understand how:</p> <p>SA1. to read notes and put notes on design</p>
	Measuring skills
	<p>The user/individual on the job needs to know and understand how:</p> <p>SA2. to assess the material requirement for making wires of specified length and thickness</p> <p>SA3. to use gauge check the thickness of wire</p> <p>SA4. to check symmetry of component made</p>
D. Professional Skills	Using tools and machines

G&J/N0601

Draw wire or strip from precious metal or alloy bar

	<p>The user/individual on the job needs to know and understand how:</p> <p>SB1. to use roller machine for drawing wire or strip</p> <p>SB2. to use tools for drawing wire such as: Gas torch or furnace for annealing wire or strip; drawing tongs and draw plate for thinning diameter of wire and required shape; wax or oil for lubrication</p> <p>SB3. to use tools such as files and pliers</p> <p>SB4. to use the right hole in draw plate and at correct angle for achieving the finish as per design</p> <p>SB5. to maintain tools and machines used</p> <p>SB6. to use technology such as computer for visual aid and efficient working</p>
	Reducing precious metal loss
	<p>The user/individual on the job needs to know and understand:</p> <p>SB7. prescribed precious-metal loss for the entire jewellery piece</p> <p>SB8. Precious-metal loss applicable for the component</p> <p>SB9. how to reduce precious metal loss below the prescribed standards</p> <p>SB10. how to collect broken or over rolled pieces, account in job sheet and return</p> <p>SB11. how to follow company's policies on collecting gold dust and fragments</p> <p>SB12. how to suggest improvements in order to reduce precious metal loss limits</p>
	Reflective thinking
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB13. work in sitting or standing for long hours position with correct posture</p> <p>SB14. maintain clean work environment and organise tools for ease of use</p>
	Critical thinking
	<p>The user/individual on the job needs to know and understand how:</p> <p>SB15. to spot process disruptions and delays</p> <p>SB16. to avoid hazards when using roller machine or draw plate or during annealing</p>

G&J/N0601

Draw wire or strip from precious metal or alloy bar

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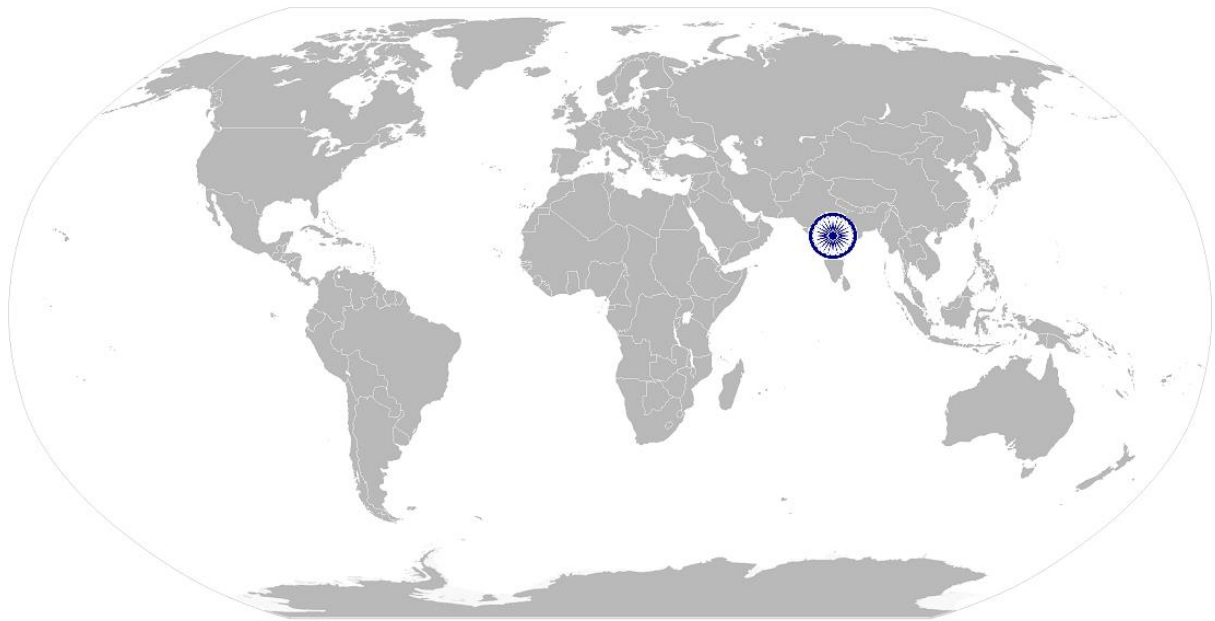
NOS Code	G&J/N0601		
Credits(NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	24/08/13
Industry Sub-sector	Handmade Gold and Gems-set Jewellery	Last reviewed on	13/08/14
		Next review date	12/08/15



G&J/N0602

Make ball from precious metal or alloy

National Occupational Standard



Overview

This unit is about one of the basic components in jewellery manufacturing, i.e., making balls from bar or sheet or strips of precious metal or their alloys. Balls of different sizes are used for completing jewellery such as earrings, neckwear, rings and bracelets.

G&J/N0602

Make ball from precious metal or alloy

National Occupational Standard

Unit Code	G&J/N0602
Unit Title (Task)	Make balls from precious metal or alloy
Description	This OS unit is about gold ball/bead making for adding to jewellery frame
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Order precious metal or metal for making ball • Make the balls or beads • File the ball segments • Control gold loss • Detect defects, rectify and return completed ball to supervisor • Report problems in time
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Ball making	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. understand design or specifications in terms of required size</p> <p>PC2. assess the quantity of gold required to make the specified number of balls</p> <p>PC3. draw sheets or strips of precious metal of required thickness based on the width and size of the ball to be made</p> <p>PC4. anneal the sheet or strip for malleability by heating to required temperature for the thickness of the alloy or metal and then quenching in water to cool</p> <p>PC5. repeat annealing process for every stage of drawing</p> <p>PC6. cut the sheet or strip as per the diameter of the ball</p> <p>PC7. create two hemispheres of the ball</p> <p>PC8. lock the two hemispheres and join them by heating</p> <p>PC9. shape the ball in circular mills with groves</p> <p>PC10. or use hollow ball making machine to make gold balls from sheets</p> <p>PC11. cut any sharp edges in the ball as per design</p> <p>PC12. file for smooth finish of joined periphery as per the design requirement</p> <p>PC13. file outer surface as per design</p> <p>PC14. make balls or beads of required size and finish as per design</p> <p>PC15. make number of balls against the daily target given</p> <p>PC16. avoided wastage in making different sizes of balls</p> <p>PC17. deliver in time the required quantity of balls</p> <p>PC18. complete the work with minimum hazards and accidents</p>
Controlling gold loss	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC19. collect precious-metal dust and fragments dispersed during the day</p> <p>PC20. tally account and record on job sheet</p> <p>PC21. conduct regular cleaning for collection of gold as per company policy</p>

G&J/N0602

Make ball from precious metal or alloy

Checking quality and reporting problems	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC22. understand the type of defect and rectify</p> <p>PC23. handover defective balls to supervisor if there is problem in rectifying</p> <p>PC24. report tools shortage and their maintenance related issues</p> <p>PC25. report machine failure</p> <p>PC26. identify reasons for anticipated delays that may adversely affect delivery</p> <p>PC27. deliver completed balls on time by reporting problems faced or anticipated well in advance</p>
Knowledge and Understanding (K)	
<p>A. Organizational Context (Knowledge of the company / organization and its processes)</p>	<p>The individual on the job needs to know and understand:</p> <p>KA1. company's policies on: Acceptable limits of gold loss per product type; delivery timelines; safety and hazards; security; and personnel management</p> <p>KA2. work flow involved in company's jewellery manufacturing process, i.e., from one goldsmith to another</p> <p>KA3. importance of the individual's role in the workflow</p> <p>KA4. reporting structure</p>
<p>B. Technical Knowledge</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. uses of different types of tools and machines used in ball making</p> <p>KB2. gold alloy properties such as strength and malleability</p> <p>KB3. heat treatments and intensity effect with respect to different types of gold alloys</p> <p>KB4. potential work hazards, particularly, when using hand and machine tools</p>
Skills (S) [Optional]	
<p>A. Core Skills/ Generic Skills</p>	<p>Basic reading and writing skills</p>
	<p>The user/individual on the job needs to know and understand how:</p> <p>SA1. to read notes and put notes on design</p>
	<p>Measuring skills</p>
	<p>The user/individual on the job needs to know and understand how:</p> <p>SA2. to assess the material requirement for making balls of specified size</p> <p>SA3. to use gauge/ vernier calipers to size the balls</p> <p>SA4. to achieve symmetry as per design</p>
<p>B. Professional Skills</p>	<p>Reducing precious metal loss</p>
	<p>The user/individual on the job needs to know and understand:</p> <p>SB1. prescribed precious metal loss for the entire jewellery piece</p> <p>SB2. precious-metal loss applicable for the component</p> <p>SB3. how to reduce precious metal loss below the prescribed standards</p> <p>SB4. how to collect broken or over rolled pieces, account in job sheet and return</p> <p>SB5. how to follow company's policies on collecting gold dust and fragments</p> <p>SB6. how to suggest improvements in order to reduce precious metal loss limits</p>
	<p>Using tools and machines</p>
	<p>The user/individual on the job needs to know and understand how:</p> <p>SB7. to work with the machines and tools used in ball making such as: roller</p>

G&J/N0602

Make ball from precious metal or alloy

	<p>machine for producing sheet from gold bar; dies for shaping hemispheres; files and pliers for smoothing and finishing; hollow ball making machine for making balls; gas torch for annealing wire</p> <p>SB8. to work in a safe environment, i.e., without injuries</p>
	Reflective thinking
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB9. work in sitting or standing for long hours position with correct posture</p> <p>SB10. maintain clean work environment and organise tools for ease of use</p>
	Critical thinking
	<p>The user/individual on the job needs to know and understand how:</p> <p>SB11. to spot process disruptions and delays</p> <p>SB12. to avoid hazards when using roller machine or during annealing</p>

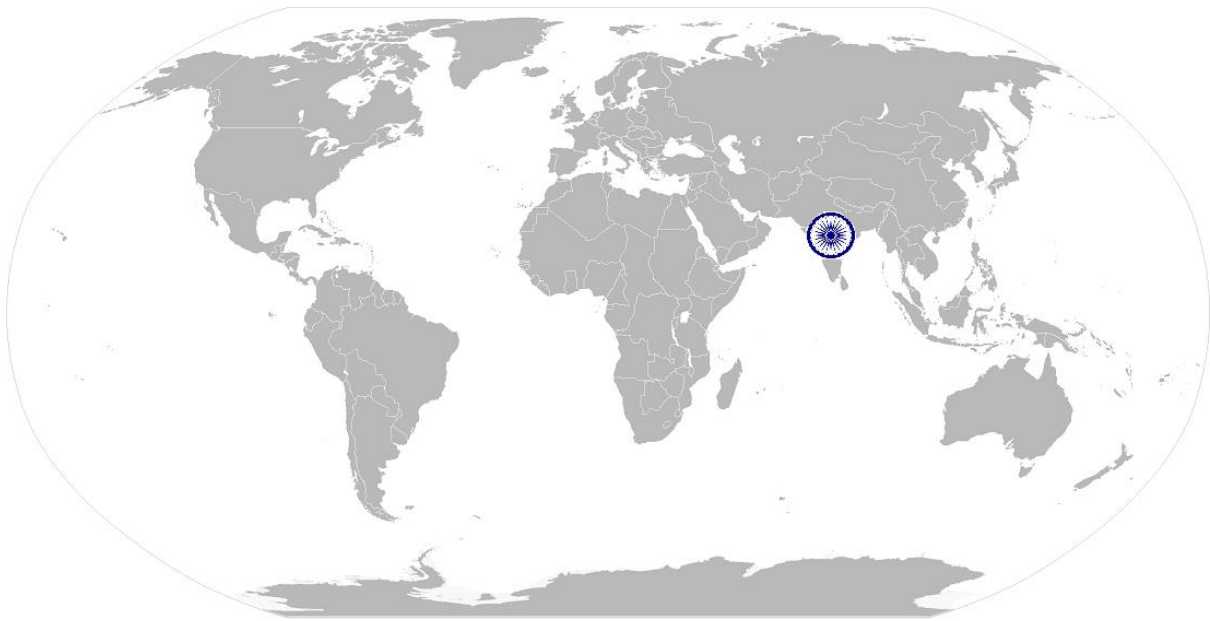
G&J/N0602

Make ball from precious metal or alloy

NOS Version Control

NOS Code	G&J/N0602		
Credits(NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	24/08/13
Industry Sub-sector	Handmade Gold and Gems-set Jewellery	Last reviewed on	13/08/14
		Next review date	12/08/15

National Occupational Standard



Overview

This unit is about stamping patterns on gold jewellery to produce design pieces for the jewellery. Stamped components are made with dies and moulds of various patterns. Stamping technique is used to create large quantities of a specific design pieces.

G&J/N0603

Stamp the gold sheet

National Occupational Standard

Unit Code	G&J/N0603
Unit Title (Task)	Stamp patterns on gold or its alloy
Description	This OS unit is about stamping patterns: on gold sheet in order to attach to main frame or on the jewellery itself
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Order precious metal or alloy for stamping • Stamp the gold sheet • File the stamped piece • Control gold loss • Detect defects, rectify and return stamped piece to supervisor • Report problems in time
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Stamping gold sheet	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. understand design or specifications to decide on the type of dies or moulds to be used</p> <p>PC2. understand the tolerances required for stamping</p> <p>PC3. assess the quantity of gold required to make the specified quantity of stamped pieces</p> <p>PC4. draw from precious metal rods or bars sheets or strips of required thickness as per design specification</p> <p>PC5. anneal the sheet or strip for malleability by heating to required temperature for the thickness of the alloy or metal and then quenching in water to cool</p> <p>PC6. repeat annealing process for every stage of drawing</p> <p>PC7. select the die or mould of the specified pattern for use in the die machine</p> <p>PC8. insert the sheet or strip in the die machine and stamp the specified design</p> <p>PC9. understand jewellery design requirements such as correct length, bend, flexibility, colour, evenness, size and embellishments to follow</p> <p>PC10. cut any sharp edges as per the design requirement</p> <p>PC11. grind for smooth surface as per the design requirement</p> <p>PC12. smooth outer periphery surface as per design</p> <p>PC13. make sheet for stamping without damaging the precious metal</p> <p>PC14. maintain accepted tolerance levels</p> <p>PC15. make number of stamped pieces made for specified design</p> <p>PC16. complete work with minimum hazards and accidents</p>
Controlling gold loss and achieving productivity	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC17. collect gold dispersed during the day such as remaining parts of sheet or strip, dust and fragments</p> <p>PC18. tally account as per allowed standards for stamping</p> <p>PC19. maintain gold loss maintained within prescribed limit</p> <p>PC20. conduct regular and controlled environment cleaning for collection</p>

G&J/N0603

Stamp the gold sheet

	<p>PC21. deliver in time</p> <p>PC22. achieve productivity as per target</p>
Checking quality	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC23. identify the type of defect and handover it over to supervisor for melting or use elsewhere</p> <p>PC24. rework on quality check feedback and return to supervisor</p> <p>PC25. ensure timely delivery</p> <p>PC26. return the dies and moulds to store department in charge</p> <p>PC27. return gold dust to supervisor</p>
Reporting problems	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC28. report machine failures</p> <p>PC29. inform about tools shortage and their maintenance related issues</p> <p>PC30. identify reasons for anticipated delays that may adversely affect delivery</p> <p>PC31. deliver complete product on time by reporting problems faced or anticipated well in advance</p>
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The individual on the job needs to know and understand:</p> <p>KA1. company's policies on: Acceptable limits of gold loss per product type; delivery timelines; safety and hazards; security; and personnel management</p> <p>KA2. work flow involved in company's jewellery manufacturing process (from one goldsmith to another)</p> <p>KA3. importance of the individual's role in the workflow</p> <p>KA4. reporting structure</p>
B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. uses of different types of machines and tools in stamping process, such as roller machine, die stamping machine, cutter, files</p> <p>KB2. gold alloy properties such as strength, malleability and required tolerances</p> <p>KB3. heat treatments and intensity effect with respect to different types of gold alloys</p> <p>KB4. potential work hazards, particularly, when using hand and machine tools as well as acids</p>
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Basic reading and writing skills
	<p>The user/individual on the job needs to know and understand how:</p> <p>SA1. to read notes and put notes on design</p>
	Calculation and geometry skills
	<p>The user/individual on the job needs to know and understand how:</p> <p>SA2. to assess the material requirement for stamping of specified design</p> <p>SA3. to get optimum number of stamp pieces from the gold sheet</p> <p>SA4. to get the symmetry of design right</p>

G&J/N0603

Stamp the gold sheet

B. Professional Skills	Reducing precious metal loss
	<p>The user/individual on the job needs to know and understand:</p> <ul style="list-style-type: none"> SB1. prescribed precious-metal loss for the entire jewellery piece SB2. precious-metal loss applicable for the component SB3. how to reduce gold loss below the prescribed standards SB4. how to collect broken or over rolled pieces, account in job sheet and return SB5. how to follow company's policies on collecting gold dust and fragments SB6. how to suggest improvements in order to reduce gold loss limits
	Using tools and machines
	<p>The user/individual on the job needs to know and understand how:</p> <ul style="list-style-type: none"> SB7. to work with the stamping machine, drawing or roller machine and annealing torch or furnace SB8. to work in a safe environment, i.e., without injuries
	Reflective thinking
	<p>The user/individual on the job needs to know and understand how to:</p> <ul style="list-style-type: none"> SB9. work in sitting or standing for long hours position with correct posture SB10. maintain clean work environment and organise tools for ease of use
	Critical thinking
	<p>The user/individual on the job needs to know and understand how:</p> <ul style="list-style-type: none"> SB11. to spot process disruptions and delays SB12. to avoid hazards when using stamping or roller machine or during annealing

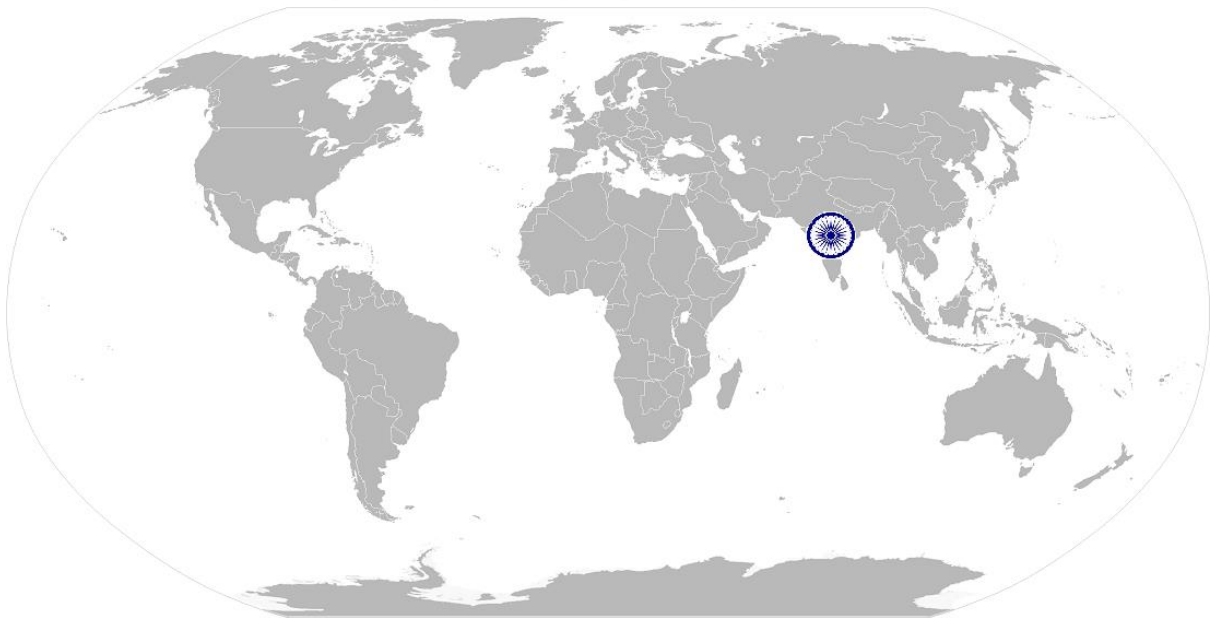
G&J/N0603

Stamp the gold sheet

NOS Version Control

NOS Code	G&J/N0603		
Credits(NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	24/08/13
Industry Sub-sector	Handmade Gold and Gems-set Jewellery	Last reviewed on	13/08/14
		Next review date	12/08/15

National Occupational Standard



Overview

This unit is about making chains for the purpose of connecting components in the jewellery. It is an extended process of wire drawing.

G&J/N0604

Make gold chain

National Occupational Standard

Unit Code	G&J/N0604
Unit Title (Task)	Make chain from gold bar
Description	This OS unit is about making chain for completing the design of jewellery
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Order precious metal for making chain • Make chain from gold or alloy • File the chain components • Control gold loss • Detect defects and return completed chain to supervisor • Report problems
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Chain making	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. understand design or specifications in terms of design, size and length</p> <p>PC2. assess the quantity of precious metal or gold alloy required to make the specified quantity of chain</p> <p>PC3. roll metal to required thickness using wire drawing or roller machine</p> <p>PC4. anneal the sheet or strip for malleability by heating to required temperature for the thickness of the alloy or metal and then quenching in water to cool</p> <p>PC5. repeat the annealing process after every rolling or drawing</p> <p>PC6. make wire of required width</p> <p>PC7. cut the wire into small piece of same length as required</p> <p>PC8. solder the ends to shape as a ring</p> <p>PC9. connect all the piece of wire together to make the chain as per design using the weaving or soldering method as specified</p> <p>PC10. understand jewellery design requirements such as correct length, bend, flexibility, colour, evenness, size and embellishments to follow</p> <p>PC11. cut any sharp edges as per the design requirement</p> <p>PC12. grind for smooth surface as per the design requirement</p> <p>PC13. smoothen outer surface as per design</p> <p>PC14. make wire for chain without damaging the gold</p> <p>PC15. make required length of chain as per the specified design</p> <p>PC16. limit loss to under prescribed standards</p> <p>PC17. deliver in time to next process</p> <p>PC18. achieve productivity as targeted</p> <p>PC19. complete work with minimum hazards and accidents</p>

G&J/N0604

Make gold chain

Controlling gold loss and achieving productivity	To be competent, the user/individual on the job must be able to: PC20. collect gold dispersed during the day (dust and fragments) PC21. tally account as per allowed standards for chain making PC22. conduct regular and controlled environment cleaning for collection PC23. deliver target number of chains as per schedule
Checking quality	To be competent, the user/individual on the job must be able to: PC24. identify the type of defect, rectify and return PC25. handover the defective piece PC26. ensure timely delivery PC27. return gold dust generated and collected
Handling problems	To be competent, the user/individual on the job must be able to: PC28. report machine failures PC29. inform about tools shortage and their maintenance related issues PC30. identify reasons for anticipated delays that may adversely affect delivery PC31. deliver complete product on time by reporting problems faced or anticipated well in advance
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The individual on the job needs to know and understand: KA1. company's policies on: acceptable limits of gold or precious metal loss per product type; delivery timelines; safety and hazards; security and personnel management KA2. work flow involved in company's jewellery manufacturing process KA3. importance of the individual's role in the workflow KA4. reporting structure
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB6. uses of different types of tools and equipment for wire drawing and chain making such as roller, wire drawing machine, ruler, pliers, hammer, bench block, cup bur, cutter and soldering device KB1. metallurgy (gold alloy properties such as strength, malleability) KB2. heat treatments and intensity effect with respect to different types of gold alloys KB3. potential work hazards, particularly, when using hand and machine tools as well as acids
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Basic reading and writing skills
	The user/individual on the job needs to know and understand how: SA1. to read notes on design
	Calculation and geometry skills
	The user/individual on the job needs to know and understand how: SA2. to assess the material requirement for making chain of specified design SA3. to make chain of specified length and size

G&J/N0604

Make gold chain

B. Professional Skills	Using tools and machines
	<p>The user/individual on the job needs to know and understand how:</p> <p>KB7. to work with the tools and machines used in wire drawing process such as roller, wire drawing machine, ruler, pliers, hammer, bench block, cup bur and cutter</p> <p>SB1. to use soldering system</p> <p>SB2. to work in a safe environment, i.e., without injuries</p>
	Reflective thinking
	<p>The user/individual on the job needs to know and understand how:</p> <p>SB3. to find ways of reducing gold loss</p> <p>SB4. use correct posture for performing the job without injuring body parts</p>
	Critical thinking
	<p>The user/individual on the job needs to know and understand how:</p> <p>SB5. to spot process disruptions and delays</p>

G&J/N0604

Make gold chain

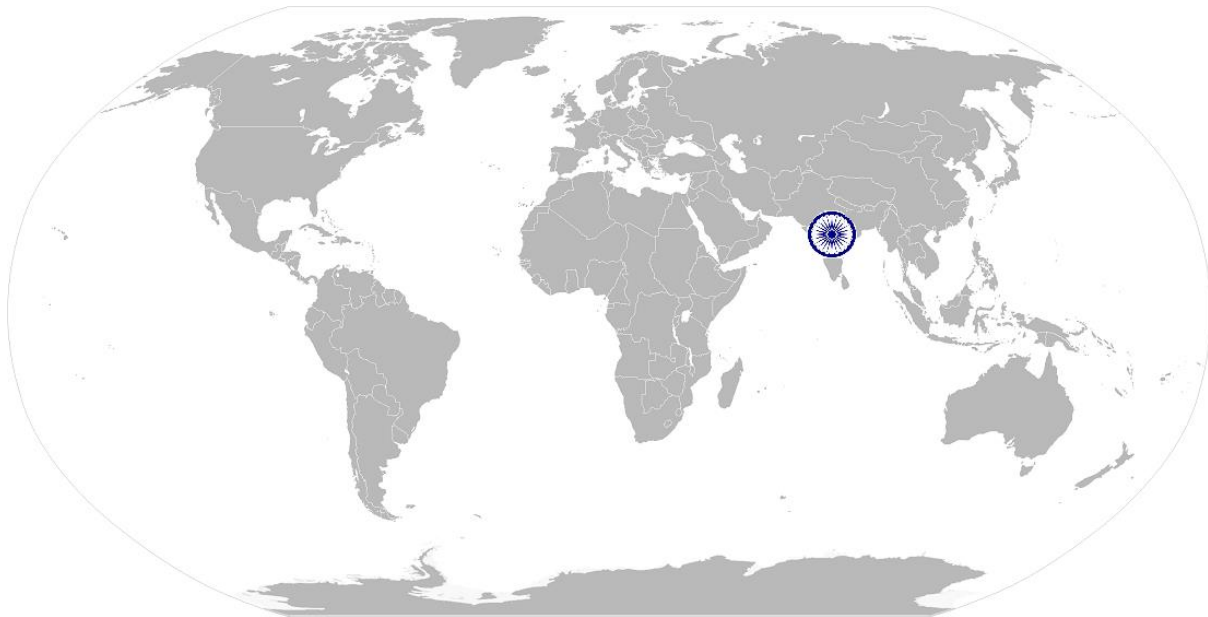
NOS Version Control

NOS Code	G&J/N0604		
Credits(NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	24/08/13
Industry Sub-sector	Handmade Gold and Gems-set Jewellery	Last reviewed on	13/08/14
		Next review date	12/08/15

G&J/N0605

Make the jewellery frame of gold or alloy

National Occupational Standard



Overview

This unit is about the first step in handmade gold jewellery manufacturing, i.e., creating the base frame of gold jewellery for further adding components, embellishing and bejewelling, polishing and finishing.

G&J/N0605

Make the jewellery frame of gold or alloy

Unit Code	G&J/N0605
Unit Title (Task)	Make gold jewellery frame of gold or alloy
Description	This OS unit is about making the base frame of gold jewellery for further embellishing and finishing
Scope	<p>The unit/ task covers the following:</p> <ul style="list-style-type: none"> • Order metal and components for making frame • Make the frame • File the frame parts or completed frame • Link and smoothen the frame • Control gold loss • Detect product defects • Check quality and send frame for quality check (QC) • Report problems
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Ordering metal	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. understand design specifications in terms of regional style applicable, types of alloy of gold, components and stones required; weight; entire jewellery making process flow, and delivery schedule</p> <p>PC2. assess quantity of gold required for frame based on product or style type and design</p> <p>PC3. assess quantity and types of components required for the frame</p> <p>PC4. accurately assess precious metal or alloy required as per design including beginning weight, gold lost in subsequent processes, and end product weight</p> <p>PC5. assess component types and quantities required</p>
Making frame	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC6. roll or draw wire, sheet or strip from gold bar as per design requirement</p> <p>PC7. anneal the wire or strip for malleability by heat-treatment using gas torch or furnace, setting the temperature according to the thickness of the wire or sheet or strip, removing from heat and quenching in water to cool</p> <p>PC8. repeat the annealing process after every drawing or rolling</p> <p>PC9. cut and saw wire or sheet to make the frame piece</p> <p>PC10. create designs by stamping, embossing, scraping, as per design</p> <p>PC11. check symmetry of design</p> <p>PC12. lay the frame pieces on wax or lac and set in Plaster of Paris (PoP) mixture or customised jigs</p> <p>PC13. solder components and frame to link frame pieces as per design</p> <p>PC14. remove PoP, level and strengthen joints in wax or lac</p> <p>PC15. send completed frame for cleaning with brush and water or chemical solution</p> <p>PC16. deliver in time to cleaning, polishing, buffing process</p>

G&J/N0605

Make the jewellery frame of gold or alloy

	<p>PC17. make accurate replica as per design with minimum rework</p> <p>PC18. achieve weight, size and detailing dimensions as per design</p> <p>PC19. achieve improved productivity per design type</p> <p>PC20. complete work with minimum hazards and accidents</p>
Filing and linking frame parts	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC21. understand design/ specification requirements such as length, bend or flexibility, colour, evenness, melting point of alloy metal, size and embellishments to follow</p> <p>PC22. cut any sharp edges and grind for smooth surface</p> <p>PC23. shape collets for stone setting or prepare surface for enamelling</p> <p>PC24. smooth outer periphery surface as per design</p> <p>PC25. avoid over filing</p> <p>PC26. return gold dust and filings to supervisor</p> <p>PC27. solder locks and hinges as per design</p> <p>PC28. ensure correct distance between linked components</p> <p>PC29. avoid under or over soldering</p> <p>PC30. achieve smooth finish and safe to wear ornament</p> <p>PC31. make strong but flexible joints</p> <p>PC32. achieve clean soldering without damage to frame</p> <p>PC33. achieve improved productivity and quality as per design requirement</p>
Controlling gold loss	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC34. collect gold dispersed during the day (dust and fragments)</p> <p>PC35. tally account as per allowed standards for the design</p> <p>PC36. conduct regular and controlled environment cleaning for collection</p> <p>PC37. maintain loss limit as per company's loss margin policy</p> <p>PC38. undertake regular gold-dust cleaning as prescribed by company</p> <p>PC39. account for loss and maintain related documentation</p>
Achieving quality of output	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC40. inform supervisor if a component has arrived with defect</p> <p>PC41. understand the type of defect and send to relevant goldsmith for rework</p> <p>PC42. check filed frame, visually, in order to detect defects such as file marks, uneven surface, rough edge, loose links, unsoldered joints and impurities</p> <p>PC43. rework as suggested by QC department</p> <p>PC44. re-file product returned from QC department with filing or design defects</p> <p>PC45. suggest ways to rectify defect in order to save rework time</p> <p>PC46. achieve size, weight, finish, detailing and dimensions as per design</p> <p>PC47. maintain utility factor maintained for ease of wearing and safety</p> <p>PC48. ensure that joints are firm and flexible and frame is even</p> <p>PC49. achieve QC-okayed base frame</p>
Handling problems	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC50. report impractical design</p> <p>PC51. report tools shortage and their maintenance related</p> <p>PC52. identify reasons for anticipated delays that may adversely affect delivery</p> <p>PC53. deliver complete product on time by reporting problems faced or anticipated well in advance</p>

G&J/N0605

Make the jewellery frame of gold or alloy

Knowledge and Understanding (K)	
D. Organizational Context (Knowledge of the company / organization and its processes)	<p>The individual on the job needs to know and understand:</p> <p>KA1. company's policies on: acceptable limits of precious metal loss per product type; delivery timelines; safety and hazards; integrity and IPR; and personnel management</p> <p>KA2. work flow involved in company's jewellery manufacturing process from one goldsmith to another</p> <p>KA3. importance of the individual's role in the workflow</p> <p>KA4. reporting structure</p> <p>KA5. typical customer profile and market trends</p>
B. Technical Knowledge	<p>The individual on the job needs to know and understand:</p> <p>KB1. different types of jewellery, e.g., regional styles, making techniques, new styles such as fusion.</p> <p>KB2. how components such as balls wire, stampings, and chains are made</p> <p>KB3. uses of different types of files and tools for different end results</p> <p>KB4. gold alloy properties such as strength, malleability</p> <p>KB5. annealing: heat treatments and intensity effect with respect to different types of gold alloys</p> <p>KB6. potential work hazards, particularly, when using hand and machine tools as well as acids</p> <p>KB7. chemical reactions between non-gold materials used</p>
Skills (S) [Optional]	
E. Core Skills/ Generic Skills	Basic reading and writing skills
	The user/individual on the job needs to know and understand how: SA5. to read notes and put notes on design
	Measuring and geometry skills
	The user/individual on the job needs to know and understand how: SA6. to assess material requirements as per design SA7. to assess gold loss at each step of jewellery making so as to deliver product of correct weight and size SA8. to translate symmetry aspect of design into jewellery frame SA9. to translate flexibility and utility aspect of design into frame
	Teamwork and multitasking
	The individual on the job needs to know and understand how: SA10. to share work load as required SA11. to deliver frame to next work process on time
F. Professional Skills	Reading design
	The individual on the job needs to know and understand: SB1. how to convert design into frame SB2. components that go into making the exact product as customer ordered SB3. how to spot difficulties with respect to practicality of design

G&J/N0605

Make the jewellery frame of gold or alloy

	Wax and plaster setting technique
	The individual on the job needs to know and understand how: SB4. to set the frame and components accurately in PoP and wax as per design SB5. to prepare plaster slurry of right temperature and set the frame SB6. to components and frame on wax or lac plate or jigs
	Soldering technique
	The individual on the job needs to know and understand how: SB7. to ensure right amount of heating in order to link the pieces
	Using tools and machines
	The user/individual on the job needs to know and understand how: SB8. to draw wire, roll sheets, cut shapes, make components, emboss and scrape as per design SB9. the rolling and drawing machines work SB10. to use the right file and at correct angle for achieving the finish as per design SB11. to solder in order to get strong links SB12. to use tools for drawing wire such as: Gas torch or furnace for annealing wire or strip; drawing tongs and draw plate; wax or oil for lubrication SB13. to use tools such as files and pliers SB14. to maintain tools and machines used SB15. to use technology such as computer for visual aid and efficient working SB16. to work in a safe environment, i.e., without injuries
	Reducing precious metal loss
	The user/individual on the job needs to know and understand: SB17. prescribed precious-metal loss for the entire jewellery piece SB18. precious-metal loss applicable for the components SB19. how to reduce precious metal loss below the prescribed standards SB20. how to collect broken or over rolled pieces, account in job sheet and return SB21. how to follow company's policies on collecting gold dust and fragments SB22. how to suggest improvements in order to reduce precious metal loss limits
	Reflective thinking
	The user/individual on the job needs to know and understand how to: SB23. work in sitting or standing for long hours position with correct posture SB24. maintain clean work environment and organise tools for ease of use
	Critical thinking
	The user/individual on the job needs to know and understand how: SB25. to spot process disruptions and delays SB26. to avoid hazards when using roller machine or draw plate or during annealing

G&J/N0605

Make the jewellery frame of gold or alloy

NOS Version Control

NOS Code	G&J/N0605		
Credits(NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	24/08/13
Industry Sub-sector	Handmade Gold and Gems-set Jewellery	Last reviewed on	13/08/14
		Next review date	12/08/15

National Occupational Standard



Overview

This unit is about setting precious and semi-precious gemstones in the finished and bejewelled frame. It is usually the last step in a gold smithy. Post non-abrasive polishing, the jewel is ready for dispatch.

G&J/N0802

Set gemstones on jewellery frame

Unit Code	G&J/N0802
Unit Title (Task)	Set gemstones on jewellery frame
Description	This OS unit is about inserting gemstones in the frame and setting it securely
Scope	<p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> • Receive sorted gemstones and jewellery frame from supervisor • Set the gemstones • File excess gold around gemstone setting • Detect product defects • Check quality
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Gemstones setting	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. understand different shapes, sizes and colour of stones</p> <p>PC2. match stones in the bag with design</p> <p>PC3. understand different jewellery styles</p> <p>PC4. understand different types of stone cut styles such as cabochon (opaque gemstones usually) and faceted (transparent and diamond usually) in order to bezel into shallow or pronged groove or with side cuts in bezel</p> <p>PC5. understand different gemstones properties in terms of capacity to withstand pressure and heat</p> <p>PC6. understand different setting styles such as bezel/ collet setting, channel setting, prong setting, bead setting, burnish setting and Kundan-jadau setting, as well as closed and open setting</p> <p>PC7. set the polished jewellery frame on lac or wax coated wooden plate</p> <p>PC8. set stones in the collet or channel or ring as per design</p> <p>PC9. boil in hot water to remove lac and achieve clean surface</p> <p>PC10. understand design requirements such as correct length of prong, bend, colour, evenness</p> <p>PC11. file or cut sharp edges of prongs</p> <p>PC12. grind for smooth surface</p> <p>PC13. avoid over filing</p> <p>PC14. achieve flawless setting as per design requirement</p> <p>PC15. achieve even colour of stones set, i.e., no discolouration or breakage during setting</p> <p>PC16. set stones securely</p>
Controlling gold loss	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC17. maintain loss as per company's loss margin policy</p> <p>PC18. document accounts on job sheet as per company policy</p>
Achieving productivity and quality of output	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC19. deliver in time</p> <p>PC20. deliver number of frames with gemstones set as per target and of design quality</p> <p>PC21. inform supervisor if product has arrived with polishing, cleaning, filing or</p>

G&J/N0802

Set gemstones on jewellery frame

	<p>linking defect from previous processes</p> <p>PC22. understand the type of defect and send to relevant goldsmith</p> <p>PC23. check visually in for any defects such as loose stone, tilted setting, marks, blank spaces</p> <p>PC24. check weight and dimensions of jewellery as per design</p> <p>PC25. understand which alloy allows re-setting of stone and which does not</p> <p>PC26. remove and re-set stone again if returned from QC</p> <p>PC27. deliver defect free and evenly set</p> <p>PC28. deliver damage free stones of even colour and well secured</p> <p>PC29. deliver maximum number of QC-okayed settings</p>
Handling problems	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC30. deliver complete jewellery on time by reporting problems faced or anticipated well in advance</p>
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The individual on the job needs to know and understand:</p> <p>KA1. company's policies on: acceptable limits of precious metal loss per product type, delivery timelines, safety and hazards, security, intellectual property rights (IPR), and personnel management</p> <p>KA2. work flow involved in jewellery manufacturing process of the company</p> <p>KA3. importance of the individual's role in the workflow</p> <p>KA4. reporting structure</p> <p>KA5. typical customer profile and market trends</p>
B. Technical Knowledge	<p>The individual on the job needs to know and understand:</p> <p>KB1. handmade jewellery making process</p> <p>KB2. types of jewellery (product, styles, regional, traditional, making technique)</p> <p>KB3. uses of different types of tools and techniques for gemstone setting</p> <p>KB4. basic properties of gemstones and effect of reaction to pressure, heat and chemicals</p> <p>KB5. gold alloy properties for securing and rework, i.e., which alloy allows rework</p> <p>KB6. filing and soldering</p>
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Basic reading and writing skills
	<p>The individual on the job needs to know and understand how:</p> <p>SA1. to read notes and put notes on design</p> <p>SA2. to use technology such as computer for visual aid or improving efficiency</p>
	Measuring and Geometry skills
	<p>The individual on the job needs to know and understand how:</p> <p>SA3. to assess precious metal loss at each step of jewellery making so as to deliver product of correct weight and size</p> <p>SA4. to translate design into gems-set jewellery</p> <p>SA5. to bezel the stone into collet at correct angle for secure and tilt-free placing</p>
	Teamwork and multitasking
	<p>The individual on the job needs to know and understand how:</p>

G&J/N0802

Set gemstones on jewellery frame

	<p>SA6. to share work load with other setters as per capability and work load</p> <p>SA7. to deliver frame to next work process on time</p>
B. Professional Skills	<p>Reading design</p> <p>The individual on the job needs to know and understand how:</p> <p>SB1. to set stones as per design</p> <p>SB2. to spot difficulties with respect to practicality of design</p> <p>Using tools</p> <p>The individual on the job needs to know and understand how:</p> <p>SB3. to use the right hand tools for achieving secure setting as per design</p> <p>SB4. to use tools so that they do not damage jewellery frame or gemstones</p> <p>SB5. to use tools such as: hammer, tweezers, graver, scoop, wooden plates with lac, gas torches, table light, needles, burrs, files and soldering system</p> <p>SB6. to understand safety and hazards involved in using tools</p> <p>Reducing precious metal loss</p> <p>The user/individual on the job needs to know and understand:</p> <p>SB7. prescribed precious metal loss for the entire jewellery piece</p> <p>SB8. precious-metal loss applicable for setting</p> <p>SB9. how to reduce precious metal loss below the prescribed standards</p> <p>SB10. how to follow company's policies on collecting gold dust and fragments</p> <p>SB11. how to account in job sheet and return</p> <p>SB12. how to suggest improvements in order to reduce precious metal loss limits</p> <p>Reflective thinking</p> <p>The individual on the job needs to know and understand how:</p> <p>SB13. to improve work processes</p> <p>SB14. to work with good posture in a sitting position</p> <p>SB15. maintain clean work environment and organise tools for ease of use</p> <p>Critical thinking</p> <p>The individual on the job needs to know and understand how:</p> <p>SB16. to spot process disruptions and delays</p>

G&J/N0802

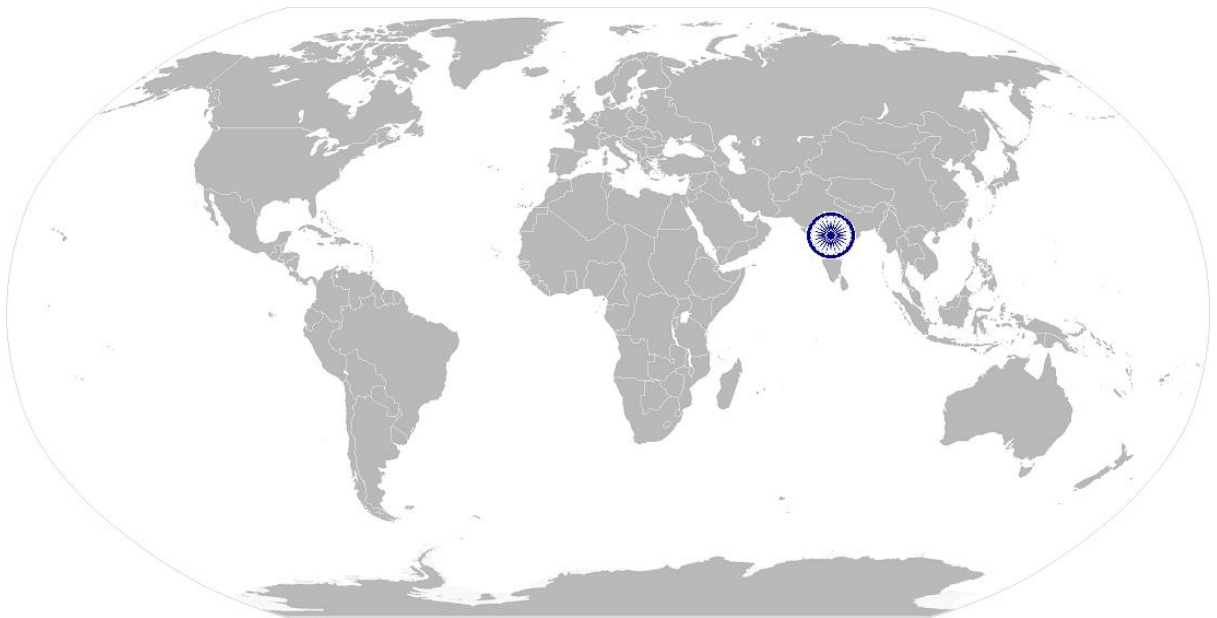
Set gemstones on jewellery frame

NOS Version Control

NOS Code	G&J/N0802		
Credits(NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	24/08/13
Industry Sub-sector	Handmade Gold and Gems-set Jewellery	Last reviewed on	13/08/14
		Next review date	12/08/15



National Occupational Standard



Overview

This unit is about and respecting intellectual property rights (IPR) of the company's products and designs and avoiding infringement on copyrights of others.

G&J/N9910

Maintain IPR and respect copyright

National Occupational Standard

Unit Code	G&J/N9910
Unit Title (Task)	Respect IPR of company as well as competitors
Description	This OS unit is about maintaining company's IPR and avoiding infringement on copyright of others
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> Protect company's Intellectual Property Rights (IPR) Avoid infringement to copyright of other companies
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Respecting IPR	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. prevent leak of new designs to competitors by reporting on time</p> <p>PC2. spot any infringement of company's product or design patents</p> <p>PC3. report IPR violations observed in the market, to supervisor or company heads</p> <p>PC4. read copyright clause of the material published on the internet and any other printed material</p> <p>PC5. consult supervisor or senior management when in doubt about using publicly available information</p> <p>PC6. report any infringement observed in the company</p> <p>PC7. spot plagiarism and report</p> <p>PC8. understand rationale of patents and IPR</p> <p>PC9. avoid being involved in IPR violations</p>
Knowledge and Understanding (K)	
A. Organizational Context	<p>The individual on the job needs to know and understand:</p> <p>KA1. company's policies on IPR, plagiarism and order leaks</p> <p>KA2. company's patented products</p> <p>KA3. market trends and company's unique product range</p> <p>KA4. reporting structure</p>
B. Technical Knowledge	<p>The individual on the job needs to know and understand:</p> <p>KB1. basics of patents and IPR laws</p> <p>KB2. how IPR protection is important for competitiveness of a company</p>
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Communication skills
	<p>The user/individual on the job needs to know and understand how:</p> <p>SA1. to effectively communicate any observed IPR violations or design leaks</p>
B. Professional Skills	Decision making
	<p>The user/individual on the job needs to know and understand when and how:</p> <p>SB1. to report sources of IPR violations</p>

G&J/N9910

Maintain IPR and respect copyright

	Reflective thinking
	The user/individual on the job needs to know and understand how: SB2. to learn from past mistakes and report IPR violations on time
	Critical thinking
	The user/individual on the job needs to know and understand how: SB3. to spot signs of violations and alert authorities in time

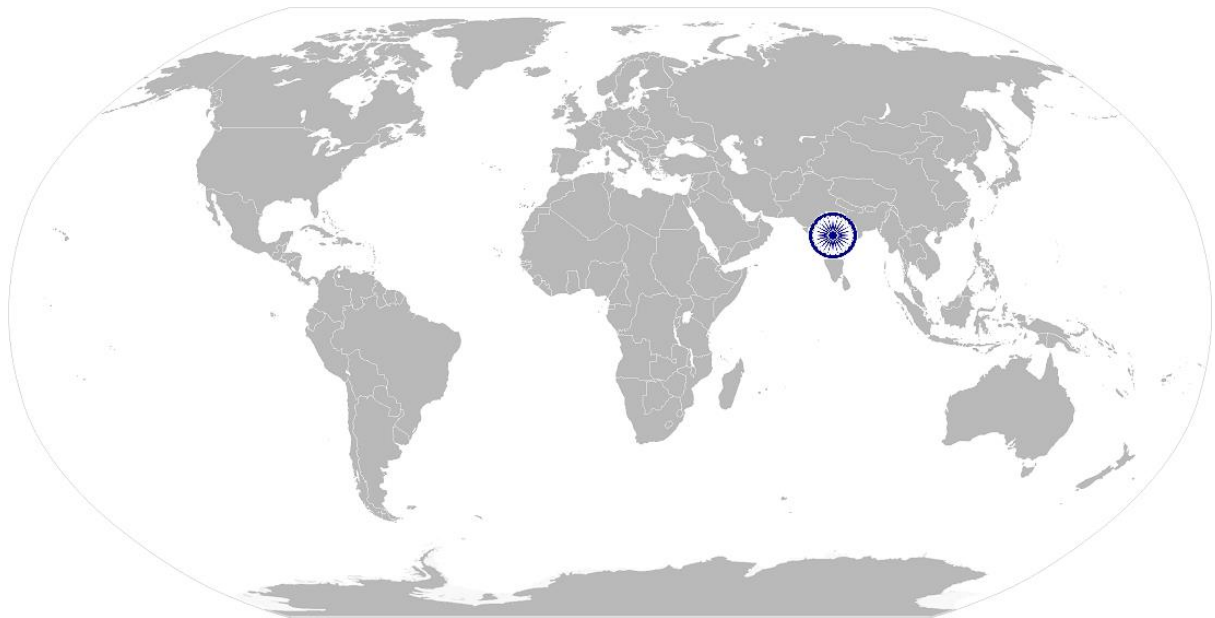
G&J/N9910

Maintain IPR and respect copyright

NOS Version Control

NOS Code	G&J/N9910		
Credits(NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	24/08/13
Industry Sub-sector	Handmade Gold and Gems-set Jewellery	Last reviewed on	13/08/14
		Next review date	12/08/15

National Occupational Standard



Overview

This unit is about the artisan or bench worker's level of communication with colleagues or clients. It determines the goldsmith's ability to work as a team member, share work and multi-task in order to achieve the required deliverables on schedule.

G&J/N9912

Coordinate with co-workers

Unit Code	G&J/N9912
Unit Title (Task)	Interact with colleagues and seniors
Description	This OS unit is about communicating with colleagues and seniors in order to maintain smooth and hazards free work flow
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> Interact with supervisor Interact with colleagues within and outside the department
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Interaction with supervisor	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. receive and understand work instructions from reporting superior</p> <p>PC2. communicate to reporting supervisor about process flow improvements, product defects received from previous process, repairs and maintenance of tools and machinery as required</p> <p>PC3. communicate any potential hazards or expected process disruptions</p> <p>PC4. handover completed work to supervisor</p> <p>PC5. understand the work output requirements</p> <p>PC6. comply with company policy and rule</p> <p>PC7. deliver quality work on time as required by reporting any anticipated reasons for delays</p>
Interactions with colleagues and other departments	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC8. work as a team with colleagues and share work as per their or own work load and skills</p> <p>PC9. work with colleagues of other departments such as frame making or component making or polishing or setting or stores</p> <p>PC10. communicate and discuss work flow related difficulties in order to find solutions with mutual agreement</p> <p>PC11. receive feedback from QC and rework in order to complete work on time</p> <p>PC12. put team over individual goals</p> <p>PC13. resolve conflicts and multi-task</p>
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The individual on the job needs to know and understand:</p> <p>KA1. company's policies on personnel management</p> <p>KA2. work flow involved in company's jewellery manufacturing process</p> <p>KA3. importance of the individual's role in the workflow</p> <p>KA4. reporting structure</p>

G&J/N9912

Coordinate with co-workers

B. Technical Knowledge	<p>The individual on the job needs to know and understand:</p> <p>KB1. how to communicate effectively</p> <p>KB2. how to build team coordination</p>
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	<p>Teamwork and some multitasking</p> <p>The individual on the job needs to know and understand how:</p> <p>SA1. to share work load as required</p> <p>SA2. to deliver product to next work process on time</p>
B. Professional Skills	<p>Decision making</p> <p>The individual on the job needs to know and understand:</p> <p>SB1. how to report potential areas of disruptions to work process</p> <p>SB2. when to report to supervisor and when to deal with a colleague depending on the type of concern</p> <p>Reflective thinking</p> <p>The individual on the job needs to know and understand:</p> <p>SB5. how to improve work process</p> <p>Critical thinking</p> <p>The individual on the job needs to know and understand:</p> <p>SB6. how to spot process disruptions and delays</p>

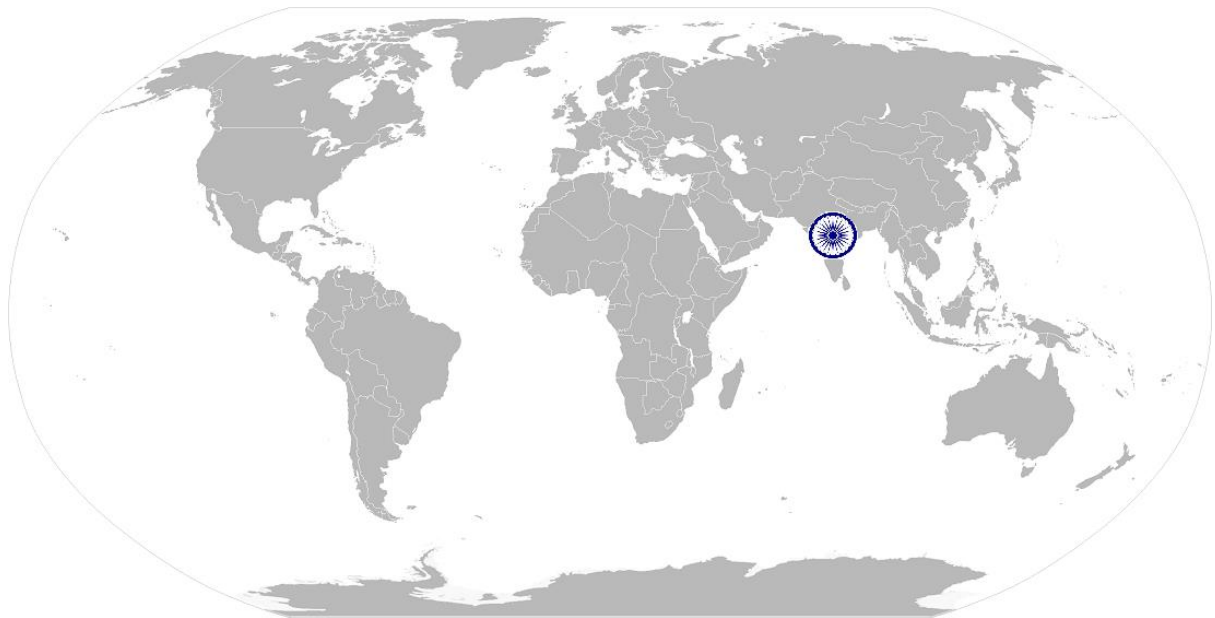
G&J/N9912

Coordinate with co-workers

NOS Version Control

NOS Code	G&J/N9912		
Credits(NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	24/08/13
Industry Sub-sector	Handmade Gold and Gems-set Jewellery	Last reviewed on	13/08/14
		Next review date	12/08/15

National Occupational Standard



Overview

This unit is about the artisan or bench worker's commitment towards reporting potential hazards and containing accidents in order to make the work environment safe for self and colleagues.

G&J/N9914

Maintain safe work environment

Unit Code	G&J/N9914
Unit Title (Task)	Work towards having a safe work environment
Description	This OS unit is about being aware of and communicating potential hazards and dangers of accidents on the job
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> Understand potential sources of accidents Communicate to reporting supervisor about hazards in time
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Understanding of potential sources of accidents and communicating	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. avoid accidents related to use of potentially dangerous chemicals, gas torches, sharp tools and hazards from machines</p> <p>PC2. suggest process flow improvements to reduce anticipated or repetitive hazards</p> <p>PC3. report mishandling of tools, machines or hazardous materials</p> <p>PC4. identify electrical problems that could result in accident</p> <p>PC5. spot and report potential hazards on time</p> <p>PC6. follow company policy and rules regarding hazardous materials</p> <p>PC7. deliver quality work on time as required by reporting any anticipated reasons for delays</p>
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The individual on the job needs to know and understand:</p> <p>KA1. company's policies on handling: harmful chemicals and sharp tools, safety and hazards of machines, fire safety and, disposal of harmful chemicals and materials</p> <p>KA2. work flow involved in company's jewellery manufacturing process</p> <p>KA3. importance of the individual's role in the workflow</p> <p>KA4. reporting structure</p>
B. Technical Knowledge	<p>The individual on the job needs to know and understand:</p> <p>KB1. how different chemicals react and what could be the danger from them</p> <p>KB2. how to use machines and tools without causing bodily harm</p> <p>KB3. fire safety education</p> <p>KB4. disposal of hazardous chemicals, tools and materials by following prescribed environmental norms or as per company policy</p>
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Communication skills
	<p>The individual on the job needs to know and understand how:</p> <p>SA1. to effectively communicate the danger</p>

G&J/N9914

Maintain safe work environment

B. Professional Skills	Decision making
	<p>The individual on the job needs to know and understand:</p> <p>SB1. importance of reporting potential sources of danger</p> <p>SB2. appropriate actions to be taken in the event of an accident</p> <p>SB3. process for disposing of hazardous materials, safely and following environmental guidelines</p>
	<p>Reflective thinking</p> <p>The individual on the job needs to know and understand how:</p> <p>SB4. to learn from past mistakes regarding use of hazardous machines or chemicals or gas torches</p>
	<p>Critical thinking</p> <p>The individual on the job needs to know and understand:</p> <p>SB5. how to spot danger</p> <p>SB6. procedures to follow in the event of a fire or other hazard</p>

G&J/N9914

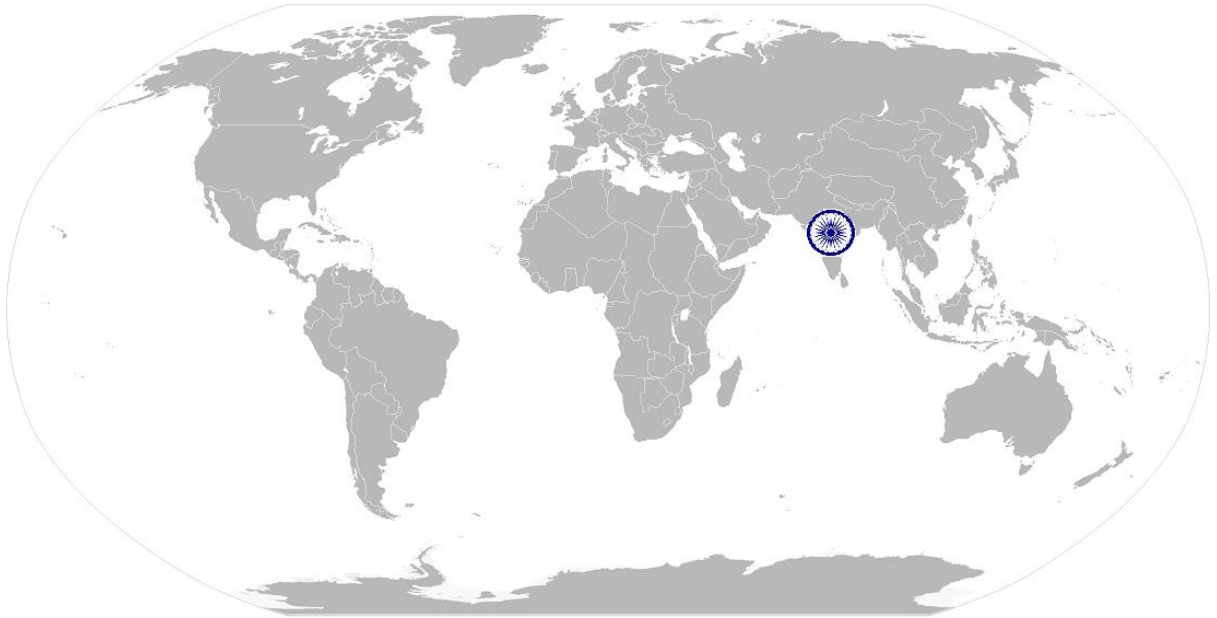
Maintain safe work environment

NOS Version Control

NOS Code	G&J/N9914		
Credits(NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	24/08/13
Industry Sub-sector	Handmade Gold and Gems-set Jewellery	Last reviewed on	13/08/14
		Next review date	12/08/15

G&J/N0903 Use embossing technique to make jewellery components from precious metal

National Occupational Standard



Overview

This unit is about making jewellery using engraving and embossing or repousse technique. This also includes preparing specialised tools by Goldsmith for engraving and embossing of jewellery. Embossed components are predominantly used in Temple jewellery.

G&J/N0903 Use embossing technique to make jewellery components from precious metal

Unit Code	G&J /N0903
Unit Title (Task)	Make jewellery components using embossing technique
Description	This OS unit is about making specialised jewellery including temple jewellery using a combination of engraving (<i>naqqquashi</i>) and embossing technique and making the required tools
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> Collect raw materials for making embossed components Prepare tools Sketch the design of the jewellery in the gold sheet Emboss the jewellery from the back side Engrave the embossed component on the front side Finish the embossing and engraving work Check the finished jewellery
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Making the temple jewellery	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. receive the jewellery design from the supervisor</p> <p>PC2. roll gold sheet as per size required using sheet rolling machine</p> <p>PC3. collect necessary wax and place it on the table where the embossing work will be done</p> <p>PC4. understand the design requirement and collect the tools which are required for embossing</p> <p>PC5. make the engravers and embossing nails as per the design if they are not available in specific size and shape</p> <p>PC6. anneal the engraverl and sharpen them as per the size required for making the jewellery</p> <p>PC7. place the gold sheet with the design sketch facing back side of the jewellery on top of the wax</p> <p>PC8. emboss or rack the jewellery from the back side in the empty portion of the sketch by hitting them using specialised tool</p> <p>PC9. use tools of various sizes to create depth in different parts of the sheet as per design</p> <p>PC10. ensure that the sheet is not damaged while embossing</p> <p>PC11. ensure that appropriate depth is created in required portion of the component, as per the design</p> <p>PC12. remove the embossed sheet from the wax and visually check for finishing</p> <p>PC13. place the embossed component on top of the wax facing the front side</p> <p>PC14. engrave the embossed component on front side to provide finishing as per design</p>

G&J/N0903 Use embossing technique to make jewellery components from precious metal

	<p>PC15. use appropriate engraving nails of different size to provide finish as per design</p> <p>PC16. ensure that there is no damage to the component while using sharp tools for engraving</p> <p>PC17. remove the jewellery from the wax and visually check for finishing</p> <p>PC18. bring clarity to the face of the motif, usually a god in temple jewellery style</p> <p>PC19. rework wherever necessary</p> <p>PC20. remove the unwanted areas in the “net cutting” process in “naququashi”</p> <p>PC21. accurately and consistently etch the design in gold sheet</p> <p>PC22. ensure that the gold sheet is not damaged during etching and it is even</p> <p>PC23. create appropriate depth from the back side while embossing</p> <p>PC24. engrave the component accurately as per design on the front side using different engravers</p> <p>PC25. accurately capture the face of motif (or the god in temple jewellery) as per design</p> <p>PC26. remove the unwanted portions carefully without damaging the embossing</p> <p>PC27. ensure that all parts of the embossing is finished as per design</p> <p>PC28. ensure that there is no damage of gold sheet during embossing and engraving process</p>
Preparation of tools	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC29. understand the design and pick appropriate tools</p> <p>PC30. make tools by annealing and other methods as per requirement</p>
Checking quality	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC31. visually check the finished jewellery for design and completion of work</p> <p>PC32. submit the finished component to supervisor or production manager for further finishing work by filing, soldering, and polishing</p> <p>PC33. deliver the embossed components on time by reporting problems faced or anticipated well in advance</p>
Knowledge and Understanding (K)	
E. Organizational Context (Knowledge of the company / organization and its processes)	<p>The individual on the job needs to know and understand:</p> <p>KA5. company’s policies on: acceptable limits of gold loss per product type; delivery timelines; safety and hazards; integrity; and personnel management</p> <p>KA6. work flow involved in company’s jewellery manufacturing process and time required to complete each stage</p> <p>KA7. importance of the individual’s role in the workflow</p> <p>KA8. reporting structure</p>
B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB7. entire process of specialised jewellery making such as Temple jewellery</p> <p>KB8. embossing and engraving techniques</p> <p>KB9. different types of embossed/temple jewellery, region wise, and their specifications</p> <p>KB10. design of the embossing/temple jewellery from dimensions on paper sketch</p> <p>KB11. prepare wax and other materials required for embossing</p> <p>KB12. different type of tools used in embossing/temple jewellery making</p> <p>KB13. different types of gold alloys and their properties such as malleability and hardness</p> <p>KB14. racking and net cutting process required for etching the design</p>

G&J/N0903 Use embossing technique to make jewellery components from precious metal

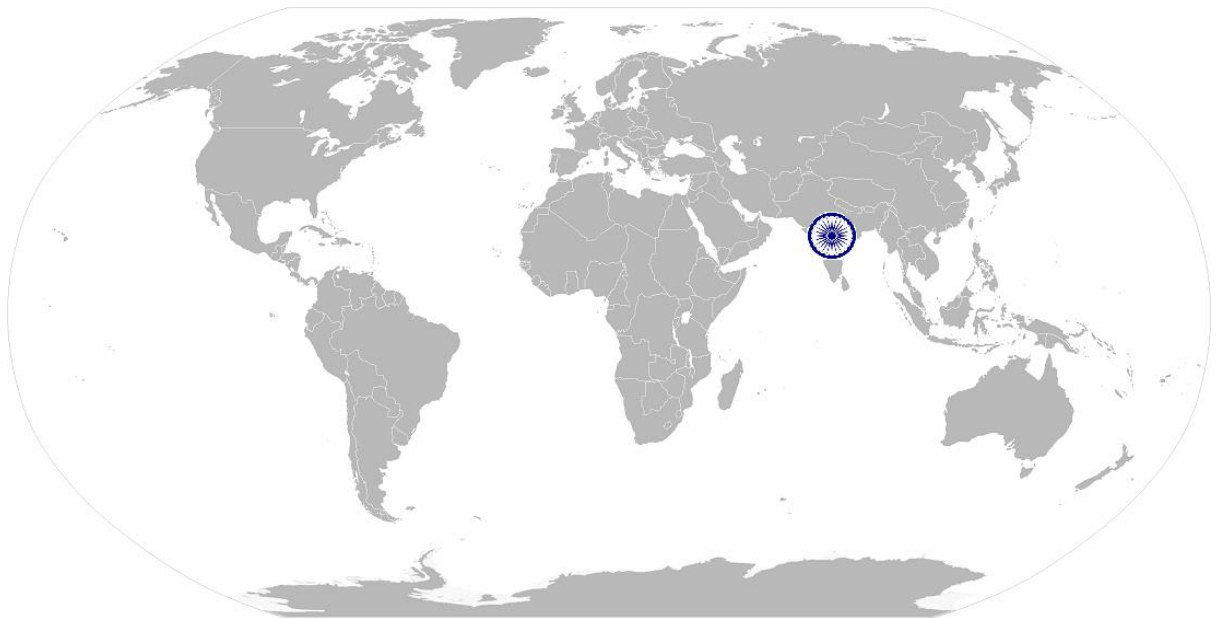
	KB15. design and etch the of face of the motif/god KB16. visually compare the jewellery with the design sketch to ensure finishing
Skills (S) [Optional]	
G. Core Skills/ Generic Skills	Basic reading and writing skills
	The individual on the job needs to know and understand how: SA8. to read notes and put notes on design SA9. to read company policy documents SA10. to read about embossing/temple jewellery making techniques
	Calculation and Geometry skills
	The individual on the job needs to know and understand how: SA11. to assess gold loss at each step of jewellery making so as to deliver product of correct weight and size SA12. to translate design into finished temple jewellery using embossing technique
	Teamwork and multitasking
	The individual on the job needs to know and understand how: SA13. to share work load with other goldsmiths SA14. to deliver the embossed components in time
H. Professional Skills	Using tools and consumables
	The individual on the job needs to know and understand how: SB17. to select required engravers as per design requirement SB18. to prepare tools as per design according to various sizes SB19. to hit the tools or engraving nails with appropriate pressure for the desired output without damaging the product SB20. to use fire in the oven or furnace for annealing the tools SB21. to manually sharpen the engraver on rough stone as per the size required SB22. to use tools without damaging the embossing or gold sheet SB23. to understand hazards involved with chemicals, furnaces and tools used
	Reducing precious-metal loss
	The user/individual on the job needs to know and understand: SB24. how to reduce precious metal loss below the prescribed standards SB25. how to collect broken pieces, account in job sheet and return SB26. how to follow company's policies on collecting gold dust and fragments SB27. how to suggest improvements in order to reduce precious metal loss limits
	Reflective thinking
	The individual on the job needs to know and understand how: SB28. to improve work processes SB29. use correct posture for performing the job without injuring body parts SB30. to reduce gold loss and rework
	Critical thinking
	The individual on the job needs to know and understand how: SB31. to spot process disruptions and delays

G&J/N0903 Use embossing technique to make jewellery components from precious metal

NOS Version Control

NOS Code	G&J/N0903		
Credits(NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	24/08/13
Industry Sub-sector	Handmade Gold and Gems-set Jewellery	Last reviewed on	13/08/14
		Next review date	12/08/15

National Occupational Standard



Overview

This unit is also called *Minakari* and is about setting painting vibrant coloured patterns on finished jewellery frame using enamel colours. This is among the last stages of manufacturing jewellery for embellishing it and is an optional but specialised and highly creative unit.

G&J/N0902

Paint with enamel colours on jewellery frame

National Occupational Standard

Unit Code	G&J/N0902
Unit Title (Task)	Paint finished jewellery frame with vibrant enamel colours
Description	This OS unit is about <i>minakari</i> or painting patterns with enamel colours on jewellery frame
Scope	<p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> • Receive work from supervisor • Prepare the enamel • Prepare gold jewellery surface for enamel paint application • Apply enamel paint on gold jewellery surface • Fire, retouch and finish • Detect product defects, check quality and return jewellery
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Preparing enamel and gold jewellery surface	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. receive the design from supervisor and understand the enamelling requirement, i.e., colour combinations, shine, areas for enamel painting, delivery schedule and methodology to use</p> <p>PC2. order consumables such as enamel lumps, acids and chemicals, brush, handling tools, safety gear and take stock of equipment such as kiln or furnace or oven or gas torch</p> <p>PC3. receive the jewellery to be enamelled</p> <p>PC4. crush the required quantities and colours of enamel lumps and grind with mortar into fine powder</p> <p>PC5. simultaneously add demineralised (DM) water so that the debris from grinding does not disperse in the air</p> <p>PC6. protect eyes and skin from injuries from dispersing debris which may contain glass and other sharp dust particles; Use protective eyewear</p> <p>PC7. repeatedly rinse fine powder and grind, adding Nitric acid to water in order to remove impurities</p> <p>PC8. take extreme care while using Nitric acid drops to avoid skin burns or adverse acid reaction</p> <p>PC9. transfer finely ground paste to a small dish or container with water at a level slightly higher than the paste</p> <p>PC10. check the paste solution for any impurities and water for any floating particles</p> <p>PC11. add a few drops of vegetable glue as bonding agent for the paste</p> <p>PC12. prepare jewellery surface for adhesion, uniform firing and even colour distribution</p> <p>PC13. engrave or chisel the surface to be painted using chisel or graver for sparkling finish of large base area Or buff the surface for small area enamelling Or cut motifs, scoop out, chisel and place on the jewel in Kundan work.</p> <p>PC14. prepare enamelling area of even thickness in order to achieve even spread of enamel while firing</p>

G&J/N0902

Paint with enamel colours on jewellery frame

	<p>PC15. prepare surface of optimum thickness for the enamel to hold an not chip or crack at a later stage</p> <p>PC16. avoid applying enamel to a hollow surface to avoid enamel-splitting at the time of firing because of moisture tapped in the hollow or depressed area</p> <p>PC17. remove from the surface any grease, oil grime and dust</p> <p>PC18. clean using acid after preparing the surface while avoiding any hand contact with the chemical used</p>
Applying enamel	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC19. paint and apply colour on prepared surface using brushes with soft bristles</p> <p>PC20. use jigs to hold the jewellery piece securely while painting</p> <p>PC21. avoid spilling paint during application on different sides of the jewel</p> <p>PC22. apply separate colours in separate strokes, i.e., one after another and not all together</p> <p>PC23. leave the painted surface for a few minutes to dry</p> <p>PC24. take care not to drop the jewellery piece after painting</p> <p>PC25. achieve smooth finish of enamel paint as per design</p> <p>PC26. ensure no overflow or excess enamel at the edges of the painted area</p> <p>PC27. ensure that enamel prepared with no impurities</p> <p>PC28. ensure no chipping or cracking enamel</p> <p>PC29. prepare surface of thickness and evenness for long term enamel adhesion</p> <p>PC30. achieve colour, vibrancy and gloss as per design</p> <p>PC31. achieve hazard-free output after using acids and chemicals</p>
Firing enamel painted jewellery	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC33. place the painted jewellery piece in the kiln or oven or furnace using stainless steel mesh for firing or use gas torch at recommended temperature for the enamel</p> <p>PC32. fire at right temperature for the enamel</p> <p>PC34. remove the jewellery from the kiln or oven or furnace or gas torch as soon as the colour melts and flows</p> <p>PC35. leave it to cool to room temperature</p> <p>PC36. check the jewel for excess enamel and remove using Hydrofluoric acid</p> <p>PC37. take extreme precaution while sing Hydrofluoric acid against inhalation, skin burns or skin contact; Use soda-ash-water solution upon any contact</p> <p>PC38. re-fire the jewel for finish as per design, repeat if necessary</p> <p>PC39. remove jewel from kiln, oven, furnace or gas torch and leave to cool</p> <p>PC40. finish the surface with grinder and cutter to remove uneven enamel and gold</p> <p>PC41. rinse with Hydrofluoric acid for uniform spread of enamel applied</p> <p>PC42. re-fire for glossy finish</p> <p>PC43. dry after every rinsing cycle and cool after each firing</p> <p>PC44. use resin colours for non-traditional, i.e., non-Jaipuri or non-Bikaneri, style of enamelling</p>

G&J/N0902

Paint with enamel colours on jewellery frame

Controlling gold loss and achieving productivity	To be competent, the user/individual on the job must be able to: PC45. maintain loss as per company's loss margin policy PC46. document account on job sheet as per company policy PC47. deliver of jewellery in time as committed to client PC48. deliver number of frames painted as per target
Checking quality	To be competent, the user/individual on the job must be able to: PC49. inform supervisor if product has arrived with polishing, cleaning, filing or linking defect from previous processes PC50. understand the type of defect and send to relevant goldsmith PC51. report impractical design PC52. use needle to check for chipped or cracked enamel after final firing PC53. in case it is chipped or cracked, leave the jewel in Hydrofluoric acid for 24-72 hour in order to remove the enamel completely and repeat the process PC54. check weight and dimensions of jewellery as per design PC55. return the completed enamelled jewel to supervisor or senior PC56. achieve defect-free and evenly coloured enamelling as per design PC57. deliver maximum number of QC-okayed enamelled pieces
Handling problems	To be competent, the user/individual on the job must be able to: PC58. deliver complete jewellery on time by reporting problems faced or anticipated well in advance
Knowledge and Understanding (K)	
B. Organizational Context (Knowledge of the company / organization and its processes)	The individual on the job needs to know and understand: KA6. company's policies on: acceptable limits of gold loss per product type, incentives, delivery standards, safety and hazards, integrity and IPR, and personnel management KA7. work flow involved in jewellery manufacturing process of the company KA8. importance of the individual's role in the workflow KA9. reporting structure KA10. typical customer profile and market trends
B. Technical Knowledge	The individual on the job needs to know and understand: KB1. jewellery making process and types of jewellery (product, styles, regional, traditional, making technique) KB2. types of enamel, such as transparent, opaque and opal or translucent and their properties: Transparent and opaque easier to apply than opal KB3. hard (firing at 750°C), medium (600-750°C) and soft (<650°C) enamels KB4. enamel available in lumps (longer shelf life), powder and paste forms KB5. choice of mortar and Pestel for grinding powder such as hardened steel, agate, stone that do not leave residue while grinding KB6. expansion and shrinkage rates of gold alloy used and that of the enamels used KB7. adverse effect of very thin base surface, poorly prepared surface or moisture on enamelling outcome KB8. adverse effect of dust and impurities in enamel or on base surface on the outcome

G&J/N0902

Paint with enamel colours on jewellery frame

	<p>KB9. recommended temperatures for different categories of enamel</p> <p>KB10. use of highly hazardous acids and chemicals such as Nitric acid or Hydrofluoric acids and safeguards</p> <p>KB11. filing and soldering</p>
Skills (S) [Optional]	
C. Core Skills/ Generic Skills	Basic reading and writing skills
	<p>The individual on the job needs to know and understand how:</p> <p>SA15. to read notes and put notes on design</p> <p>SA16. to read company policy documents</p> <p>SA17. to read about enamelling and jewellery making techniques</p>
	Calculation and Geometry skills
	<p>The individual on the job needs to know and understand how:</p> <p>SA18. to assess gold loss at each step of jewellery making so as to deliver product of correct weight and size</p> <p>SA19. to translate design into enamel painted jewellery</p>
	Teamwork and multitasking
	<p>The individual on the job needs to know and understand how:</p> <p>SA20. to share work load with other setters as per capability and work load</p> <p>SA21. to deliver the enamelled jewellery on time</p>
D. Professional Skills	Painting
	<p>The individual on the job needs to know and understand how:</p> <p>SB1. to use creativity while painting layers of different colours of enamel</p> <p>SB2. to enamel keeping in mind the requirements of finish, longevity of colour and utility of the design</p>
	Using tools and consumables
	<p>The individual on the job needs to know and understand how:</p> <p>SB3. to use demineralised water for grinding, washing and rinsing enamel</p> <p>SB4. to use vegetable glue such as pomegranate seeds for bonding the enamel paste</p> <p>SB5. to use Nitric acid to rinse ground enamel through drop bottles</p> <p>SB6. to use Hydrofluoric acid to wash and remove excess enamel and achieve smooth finish</p> <p>SB7. to use polypropylene steel containers to handle acids</p> <p>SB8. to use mortar and pestel to break and grind enamel lumps into fine powder and grinding stones</p> <p>SB9. to use porcelain and steel dishes for holding enamel paste during application</p> <p>SB10. to use fine bristled brushes for painting</p> <p>SB11. to use chisels and graves for preparing the base gold surface</p> <p>SB12. to use temperature controlled kilns, ovens or furnaces for firing and steel wire mesh for putting the jewel for firing</p> <p>SB13. to use tongs, holders, spatula, plates, ceramic blocks and asbestos boards</p> <p>SB14. to understand hazards involved with chemicals, furnaces and tools used</p>

G&J/N0902

Paint with enamel colours on jewellery frame

	Reducing precious-metal loss
	The user/individual on the job needs to know and understand: SB15. how to reduce precious metal loss below the prescribed standards SB16. how to collect broken pieces, account in job sheet and return SB17. how to follow company's policies on collecting gold dust and fragments SB18. how to suggest improvements in order to reduce precious metal loss limits
	Reflective thinking
	The individual on the job needs to know and understand how: SB19. to improve work processes SB20. to reduce gold loss and rework because of chipped or cracked enamel
	Critical thinking
	The individual on the job needs to know and understand how: SB21. to spot process disruptions and delays

G&J/N0902

Paint with enamel colours on jewellery frame

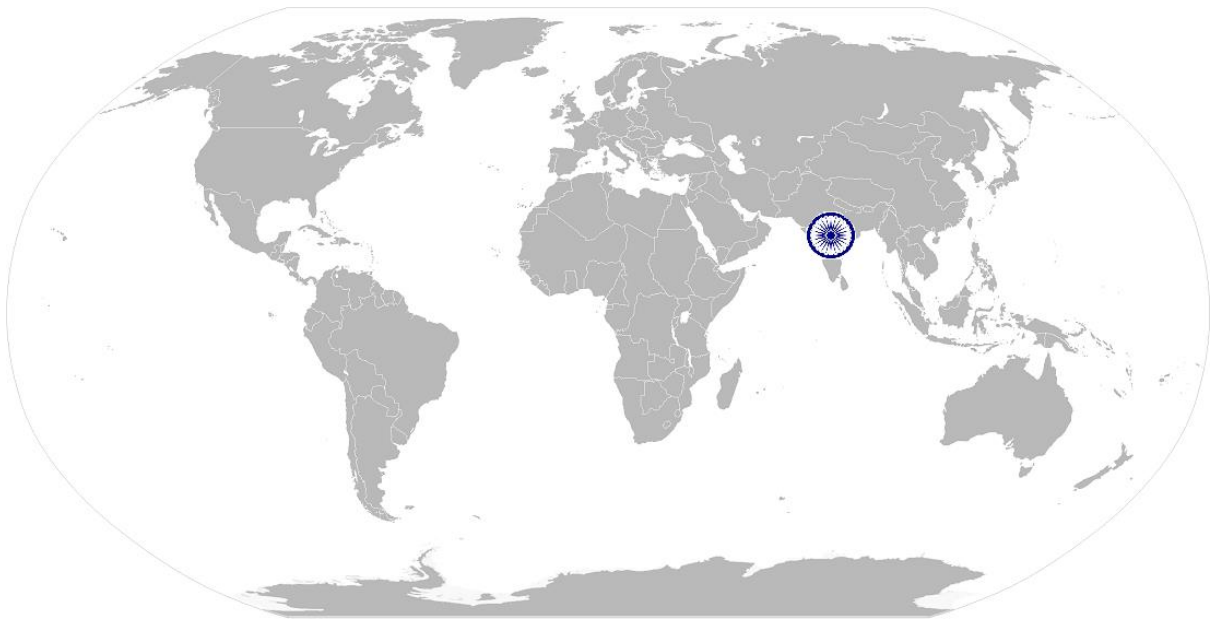
NOS Version Control

NOS Code	G&J/N0902		
Credits(NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	24/08/13
Industry Sub-sector	Handmade Gold and Gems-set Jewellery	Last reviewed on	13/08/14
		Next review date	12/08/15

G&J/N0904

Make components, frame *Kundan* (24K gold) and Silver Foils

National Occupational Standard



Overview

This unit is about making the different jewellery components by hand and linking them to form the jewellery frame. It is also about making thin pure gold and silver foils for use in the closed (*Jadau*) setting of gemstones or flat diamonds.

G&J/N0904

Make components, frame *Kundan* (24K gold) and Silver Foils

Unit Code	G&J/N0904
Unit Title (Task)	Make components, frame, <i>Kundan</i> (24K gold) foil and Silver foil
Description	This OS unit is about making <i>Kundan</i> jewellery along with enamelling and <i>Jadau</i> (closed) setting using components and gemstones
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Order precious metal or alloy for making components • Draw wire, strip or sheet • Make <i>Kundan</i> (24K gold) foil or Silver foil • Anneal the wire or strip or sheet for malleability while drawing or rolling • Make components • Make the frame • File the frame components for finishing • Control precious metal loss • Detect product defects and return completed wire to supervisor • Report problems in time
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Preparing for making <i>Kundan</i>-<i>Jadau</i> jewellery	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. understand specifications in terms of required components, e.g., wires or chains, sheets, balls, collets</p> <p>PC2. understand dimensions required such as thickness of wire, size and shape of ball, and depth and shape of collet</p> <p>PC3. assess quantity of precious metal or alloy required for making the components</p> <p>PC4. roll metal bars/ingots to the appropriate thickness using wire drawing or rolling machine</p> <p>PC5. sharpen one end of the metal bar / rolled wire to ease the insertion of metal bar / rolled wire into draw-plate cavity / hole</p> <p>PC6. push the metal through the draw-plate and then draw it out using force, so as to thin the wire step by step</p> <p>PC7. repeat the process through consecutive small holes to get the required thickness of wire</p> <p>PC8. pass metal through roller machine or mill to make into strips or sheet of appropriate thickness</p>
Making <i>Kundan</i>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC9. roll 24 karat gold metal into thin leaf by repeatedly using rolling machine and hammering</p> <p>PC10. roll silver metal into thin leaf using rolling machine</p> <p>PC11. heat treat / anneal the sheets / wire and pickle it (pickling is boiling in approximately 10% sulphuric acid solution, awareness of hazard notes is must), after pickling, rinse it in plain or mild alkaline water</p>

G&J/N0904

Make components, frame *Kundan* (24K gold) and Silver Foils

	<p>PC12. make rolls of thin leaf of gold and silver</p> <p>PC13. assess whether the wire or strip type (e.g., spring) requires annealing</p> <p>PC14. treat the wire or strip with heat using gas torch or furnace</p> <p>PC15. set temperature according to the thickness of the wire or strip</p> <p>PC16. remove the wire or strip from heat and quench in water to cool immediately</p> <p>PC17. repeat the heating and cooling process after every drawing or rolling</p>
Making components and frame	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC18. solder the ends to shape as a ring</p> <p>PC19. connect pieces of wire together to make the chain as per design using the weaving or soldering method as specified</p> <p>PC20. to make ball, cut the sheet or strip as per the diameter of the ball</p> <p>PC21. create two hemispheres of the ball and lock and join them by heating</p> <p>PC22. or use hollow ball making machine to make gold balls from sheets</p> <p>PC23. or fire small wire pieces on glass cotton to make small sized balls</p> <p>PC24. connect the ends of sheet to make collet, give shape as per design and solder</p> <p>PC25. check symmetry of design</p> <p>PC26. lay the components and frame pieces on wax or lac and set in Plaster of Paris (PoP) mixture or customised jigs</p> <p>PC27. solder components to link to form frame as per design on both sides</p> <p>PC28. remove PoP, level and strengthen joints in wax or lac</p> <p>PC29. send completed frame for cleaning with brush and water or chemical solution</p> <p>PC30. make components of required dimensions such as size and thickness</p> <p>PC31. make components of required finish and evenness</p> <p>PC32. draw or roll metal without overdrawing or splitting or cracking</p> <p>PC33. anneal the wire, strips and sheets for required malleability for the thickness required</p> <p>PC34. limit precious-metal loss of damaged metal rod or wire</p> <p>PC35. cut any sharp edges as per design</p> <p>PC36. file for smooth finish of joined periphery as per the design requirement</p> <p>PC37. file or grind outer surface for smoothness and required finish</p> <p>PC38. file for correct dimensions, e.g., length, bend, flexibility, colour, evenness, size and embellishments to be fitted</p> <p>PC39. accurately link the ends to form even rings, collets or chains of required dimensions</p> <p>PC40. link, solder and file the components into frame of required finish and utility</p> <p>PC41. achieve required flexibility, utility and symmetry of frame as per design</p> <p>PC42. meet productivity target</p> <p>PC43. complete work with minimum hazards and accidents</p>
Controlling precious metal loss and checking quality	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC44. collect precious metal dust or fragments dispersed during the day</p> <p>PC45. tally account as per allowed standards for wire making</p> <p>PC46. conduct regular cleaning for collection of gold as per company policy</p> <p>PC47. identify the type of defect, e.g., damaged beyond repair</p> <p>PC48. handover defective components to supervisor for melting or use elsewhere</p>

G&J/N0904

Make components, frame *Kundan* (24K gold) and Silver Foils

	PC49. rework on any quality check feedback and return PC50. ensure timely delivery
Reporting problems	To be competent, the user/individual on the job must be able to: PC51. report equipment/machine failure PC52. inform about tools shortage and their maintenance related issues PC53. report reasons for anticipated delays that may adversely affect delivery PC54. report malfunction of annealing torch or furnace deliver complete frames in time by reporting well in advance, any problems faced or anticipated
Knowledge and Understanding (K)	
F. Organizational Context (Knowledge of the company / organization and its processes)	The individual on the job needs to know and understand: KA9. company's policies on: Acceptable limits of precious metal loss per product type; delivery timelines; safety and hazards; security; and personnel management KA10. work flow involved in company's jewellery manufacturing process, i.e., from one goldsmith to another KA11. importance of the individual's role in the workflow KA12. reporting structure
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB8. uses of different types of tools used in wire drawing and rolling such as ruler, draw plates, pliers, hammer, bench block, cup bur, cutter, roller machine KB9. gold and silver foil packing KB10. properties of gold and silver leafs KB11. different types of wax or lac and their use KB12. precious-metal or gold alloy properties such as strength and malleability KB13. heat treatments and intensity effect with respect to different types of gold alloys, e.g., 18K gold requires less annealing than 10K or springs need different treatment than annealing KB14. potential work hazards, particularly, when using hand and machine tools
Skills (S) [Optional]	
I. Core Skills/ Generic Skills	Basic reading and writing skills
	The user/individual on the job needs to know and understand how: SA12. to read notes and put notes on design
	Measuring skills
	The user/individual on the job needs to know and understand how: SA13. to assess the material requirement for making wires of specified length and thickness SA14. to use gauge check the thickness of wire SA15. to check symmetry of component made
J. Professional Skills	Using tools and machines
	The user/individual on the job needs to know and understand how: SB17. to use roller machine for drawing wire or strip SB18. to use tools for drawing wire such as: Gas torch or furnace for annealing wire or strip; drawing tongs and draw plate for thinning diameter of wire and

G&J/N0904

Make components, frame *Kundan* (24K gold) and Silver Foils

	<p>required shape; wax or oil for lubrication</p> <p>SB19. to use tools such as files and pliers</p> <p>SB20. to use the right hole in draw plate and at correct angle for achieving the finish as per design</p> <p>SB21. to maintain tools and machines used</p> <p>SB22. to use technology such as computer for visual aid and efficient working</p>
	Reducing precious metal loss
	<p>The user/individual on the job needs to know and understand:</p> <p>SB23. prescribed precious-metal loss for the entire jewellery piece</p> <p>SB24. Precious-metal loss applicable for the component</p> <p>SB25. how to reduce precious metal loss below the prescribed standards</p> <p>SB26. how to collect broken or over rolled pieces, account in job sheet and return</p> <p>SB27. how to follow company's policies on collecting gold dust and fragments</p> <p>SB28. how to suggest improvements in order to reduce precious metal loss limits</p>
	Reflective thinking
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB29. work in sitting or standing for long hours position with correct posture</p> <p>SB30. maintain clean work environment and organise tools for ease of use</p>
	Critical thinking
	<p>The user/individual on the job needs to know and understand how:</p> <p>SB31. to spot process disruptions and delays</p> <p>SB32. to avoid hazards when using roller machine or draw plate or during annealing</p>

G&J/N0904

Make components, frame *Kundan* (24K gold) and Silver Foils

NOS Version Control

NOS Code	G&J/N0904		
Credits(NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	24/08/13
Industry Sub-sector	Handmade Gold and Gems-set Jewellery	Last reviewed on	13/08/14
		Next review date	12/08/15

National Occupational Standard



Overview

This unit is about setting gemstones, mainly, flat diamonds (or polki diamonds) in the jewellery frame using silver foil and *kundan* (24K gold) foil; it is also about stringing gemstones on to the jewellery frame.

G&J/N0803

Set gemstones using Jadau technique and string

Unit Code	G&J/N0803
Unit Title (Task)	Set flat diamonds or gemstones using Jadau technique and string gemstones to jewellery frame
Description	This OS unit is about using the Jadau setting technique for setting gemstones, mainly, flat diamonds (or polki diamonds) in the jewellery frame using silver foil and kundan (24K gold) foil; it is also about stringing gemstones on to the jewellery frame
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Receive sorted polki-diamonds or glass, gemstones and jewellery frame for setting • Set polki and other gemstone stones • String gemstones beads on along the lower periphery of the frame • File excess gold around gemstone setting • Detect product defects • Check quality and report problems
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Jadau setting	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. understand different shapes, sizes and colour of stones</p> <p>PC2. match stones in the bag with design</p> <p>PC3. understand the closed setting requirement, i.e., with enamel on back side or without</p> <p>PC4. for polki-jadau setting, fill the empty collet on frame with molten wax</p> <p>PC5. polish silver foil with Agate and apply on the back side of the polki stone with hot wax; cut off excess foil from the side</p> <p>PC6. place the polki-silver assembly on the hot wax and press with solder so that the stone is set in place</p> <p>PC7. use layers of 24K gold foil to press around the polki-silver assembly for secure setting</p> <p>PC8. for other gemstone setting, set the jewellery frame on lac or wax coated wooden plate</p> <p>PC9. set stones in the collet or channel or ring as per design</p> <p>PC10. boil in hot water to remove lac and achieve clean surface</p> <p>PC11. receive the bag of beads to be used for lining the jewellery</p> <p>PC12. fit and secure the gemstone using the wire drawn and joined together</p> <p>PC13. string the set gemstones using thin gold wire</p> <p>PC14. link the assembled gemstone to the jewellery frame by soldering</p> <p>PC15. understand design requirements such as correct length of jadau, prong, bend, colour, evenness</p> <p>PC16. file or cut sharp edges of prongs</p> <p>PC17. grind for smooth surface</p> <p>PC18. avoid over filing</p> <p>PC19. achieve required shine for polki setting</p> <p>PC20. achieve flawless setting as per design requirement</p>

G&J/N0803

Set gemstones using *Jadau* technique and string

	<p>PC21. achieve even colour of stones set, i.e., no discolouration or breakage during setting</p> <p>PC22. set stones securely</p> <p>PC23. stringing is even and secure</p> <p>PC24. avoid damage to the rest of the frame during the process of setting</p> <p>PC25. achieve productivity as per target</p> <p>PC26. complete work with minimum hazards and accidents</p>
Quality checking	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC27. inform supervisor if product has arrived with polishing, cleaning, filing or linking defect from previous processes</p> <p>PC28. understand the type of defect and send to relevant goldsmith</p> <p>PC29. check visually in for any defects such as loose stone, tilted setting, marks, blank spaces</p> <p>PC30. check weight and dimensions of jewellery as per design</p> <p>PC31. remove and re-set stone again if returned from QC</p> <p>PC32. report tools shortage and their maintenance related issues</p> <p>PC33. identify an report reasons for anticipated delays that may adversely affect delivery</p> <p>PC34. deliver stones set jewellery in time by reporting problems faced or anticipated well in advance</p>
Knowledge and Understanding (K)	
B. Organizational Context (Knowledge of the company / organization and its processes)	<p>The individual on the job needs to know and understand:</p> <p>KA5. company's policies on: Acceptable limits of gold loss per product type; delivery timelines; safety and hazards; security; and personnel management</p> <p>KA6. work flow involved in company's jewellery manufacturing process (from one goldsmith to another)</p> <p>KA7. importance of the individual's role in the workflow</p> <p>KA8. reporting structure</p>
B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. sorting similar shapes and size of stones as per design</p> <p>KB2. 4Cs, i.e., colour, cut, clarity and carat</p> <p>KB3. handmade jewellery making process</p> <p>KB4. types of close set jewellery and jadau styles such as Jaipuri/ Bikaneri, Amritsari, Delhi</p> <p>KB5. uses of different types of tools and techniques for gemstone setting</p> <p>KB6. different types of polki or flat diamonds and glass</p> <p>KB7. different types of wax and their use in jewellery making</p> <p>KB8. basic properties of gemstones and effect of reaction to pressure, heat and chemicals</p> <p>KB9. gold alloy properties for securing and rework, i.e., which alloy allows rework</p> <p>KB10. filing and soldering</p>

G&J/N0803

Set gemstones using *Jadau* technique and string

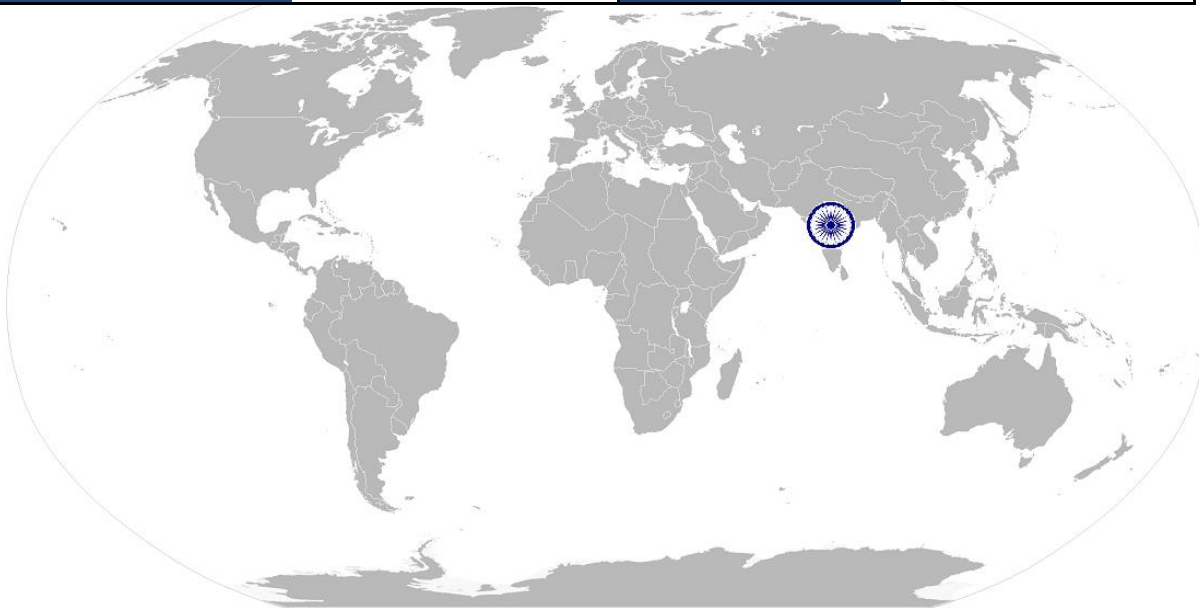
Skills (S) [Optional]	
C. Core Skills/ Generic Skills	Basic reading and writing skills
	The individual on the job needs to know and understand how: SA1. to read notes and put notes on design SA2. to use technology such as computer for visual aid or improving efficiency
	Measuring and Geometry skills
	The individual on the job needs to know and understand how: SA3. to assess precious metal loss at each step of jewellery making so as to deliver product of correct weight and size SA4. to translate design into gems-set jewellery SA5. to set the stone into collet at correct angle for secure and tilt-free placing
	Teamwork and multitasking
	The individual on the job needs to know and understand how: SA6. to share work load with other setters as per capability and work load SA7. to deliver frame to next work process on time
D. Professional Skills	Reading design
	The individual on the job needs to know and understand how: SB1. to set stones as per design SB2. to spot difficulties with respect to practicality of design
	Using tools
	The individual on the job needs to know and understand how: SB3. to use the right hand tools for achieving secure setting as per design SB4. to use tools so that they do not damage jewellery frame or gemstones SB5. to use tools such as: hammer, tweezers, graver, scoop, wooden plates with lac, gas torches, table light, needles, burrs, files and soldering system SB6. to understand safety and hazards involved in using tools
	Reducing precious metal loss
	The user/individual on the job needs to know and understand: SB7. prescribed precious metal loss for the entire jewellery piece SB8. precious-metal loss applicable for setting SB9. how to reduce precious metal loss below the prescribed standards SB10. how to follow company's policies on collecting gold dust and fragments SB11. how to account in job sheet and return SB12. how to suggest improvements in order to reduce precious metal loss limits
	Reflective thinking
	The individual on the job needs to know and understand how: SB13. to improve work processes SB14. to work with good posture in a sitting position SB15. maintain clean work environment and organise tools for ease of use
	Critical thinking
	The individual on the job needs to know and understand how: SB16. to spot process disruptions and delays

G&J/N0803

Set gemstones using *Jadau* technique and string

NOS Version Control

NOS Code	G&J/N0803		
Credits(NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	24/08/13
Industry Sub-sector	Handmade Gold and Gems-set Jewellery	Last reviewed on	13/08/14
		Next review date	12/08/15



Definitions

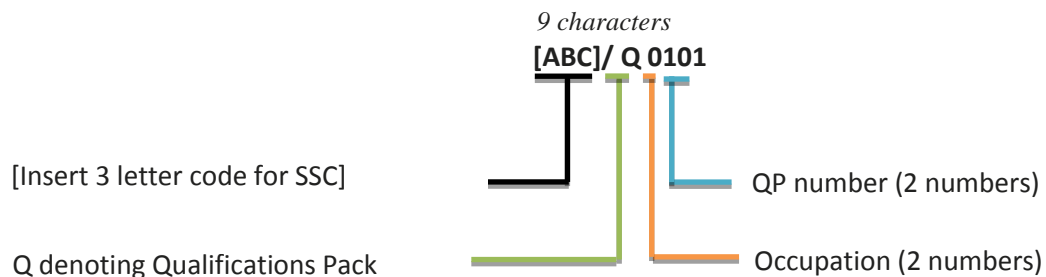
Keywords /Terms	Description
Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or an area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.
Sub-function	Sub-functions are sub-activities essential to fulfil the achieving the objectives of the function.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria	Performance criteria are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (OS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.
Knowledge and Understanding	Knowledge and understanding are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish

	specific designated responsibilities.
Core Skills/ Generic Skills	Core skills or generic skills are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Keywords /Terms	Description
IPR	Intellectual Property Rights
NOS	National Occupational Standard(s)
NVQF	National Vocational Qualifications Framework
NSQF	National Qualifications Framework
NVEQF	National Vocational Education Qualifications Framework
QP	Qualifications Pack

Annexure

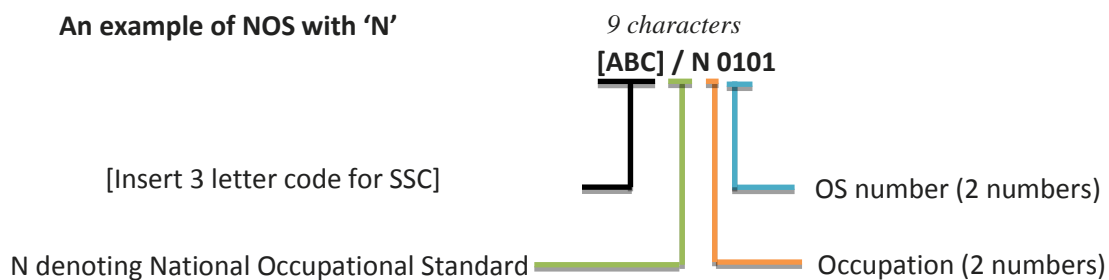
Nomenclature for QP and NOS

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



[Back to top...](#)

The following acronyms/codes have been used in the nomenclature above:

Sub-sector	Range of Occupation numbers
Handmade gold and gems-set jewellery	01-20
Cast and diamond-set jewellery	21-40
Diamond processing	41-60
Gemstone processing	61-80
Jewellery retailing	81-98

Sequence	Description	Example
Three letters	Industry name	G&J
Slash	/	/
Next letter	Whether QP or NOS	Q
Next two numbers	Occupation code	07
Next two numbers	OS number	02

CRITERIA FOR ASSESSMENT OF TRAINEES					
Job Role	Master Maker -Hand				
Qualification Pack	Master Maker -Hand				
Sector Skill Council	GEMS & JEWELLERY				
To pass the Assessment, a candidate needs to score 50% in Theory and 70% in Practical					
Assessment Strategy				Marks Allocation	
NOS	Elements	Performance Criteria	Theory	Practical	
1. G&J/N1402 Draw jewellery designs	Drawing jewellery designs	PC1. draw clear sketches, detailed drawings, illustrations, artwork, or blueprints, using drawing stationary	0	1	
		PC2. indicate accurate detailing of stages of development showing cut and shape of diamond and stone	1	0	
		PC3. provide accurate information and data provided on overall dimensions of diamond and stones in terms of number, size and type	1	0	
		PC4. create a number of new designs	1	0	
	Productivity	PC5. deliver jewellery designs in time	0	1	
		PC6. create number of successful designs prepared as per target given	0	1	
		PC7. create defect free output	0	2	
	Quality of output	PC8. maintain look of the design for the design concept provided	0	1	
		PC9. create well balanced designs based on inputs from marketing and product development	0	1	
			Sub Total	3	7
2. G&J/N0601 Draw wire or strip from precious metal or alloy bar	Making wire or strip	PC1. make wire of required thickness and evenness, not over drawn or split or cracked	2	1	
		PC2. limit precious-metal loss of damaged metal rod or wire	1	1	
		PC3. deliver in time, the wires to supervisor	0	1	
		PC4. meet productivity target	1	1	
		PC5. complete work with minimum hazards and accidents	0	1	
	Handling problems	PC6. deliver complete components on time by reporting well in advance, any problems faced or anticipated	0	1	
3. G&J/N0602 Make ball from precious metal or alloy		Sub Total	4	6	
	Ball making	PC1. make balls or beads made of required size and finish as per design	1	2	
		PC2. make number of balls against the daily target given	2	0	
		PC3. avoided wastage in making different sizes of balls	0	1	
		PC4. deliver in time the required quantity of balls	1	1	
		PC5. complete the work with minimum hazards and accidents	1	1	
	Handling problems	PC6. deliver completed balls on time by reporting problems faced or anticipated well in advance	0	1	

CRITERIA FOR ASSESSMENT OF TRAINEES				
		Sub Total	5	6
4. G&J/N0603 Stamp the gold sheet	Stamping	PC1. make sheet for stamping without damaging the precious metal	0	2
		PC2. maintain accepted tolerance levels	0	1
		PC3. make number of stamped pieces made for specified design	1	1
		PC4. maintain gold loss maintained within prescribed limit	1	2
		PC5. deliver in time	0	1
		PC6. achieve productivity as per target	0	1
		PC7. complete work with minimum hazards and accidents	0	1
	Problems handling	PC8. deliver complete product on time by reporting problems faced or anticipated well in advance	0	1
		Sub Total	2	10
5. G&J/N0604 Make gold chain	Chain making	PC1. make wire for chain without damaging the gold	0	2
		PC2. make required length of chain as per the specified design	0	1
		PC3. limit loss to under prescribed standards	1	1
		PC4. deliver in time to next process	0	1
		PC5. achieve productivity as targeted	0	2
		PC6. complete work with minimum hazards and accidents	0	1
	Handling problems	PC7. deliver complete product on time by reporting problems faced or anticipated well in advance	0	2
		Sub Total	1	10
6. G&J/N0605 Make the jewellery frame of gold or alloy	Ordering metal	PC1. accurately assess precious metal or alloy required as per design including beginning weight, gold lost in subsequent processes, and end product weight	0	1
		PC2. assess component types and quantities required	0	1
	Making frame	PC3. deliver in time to cleaning, polishing, buffing process	0	1
		PC4. make accurate replica as per design with minimum rework	0	1
		PC5. achieve weight, size and detailing dimensions as per design	0	1
		PC6. achieve improved productivity per design type	1	1
		PC7. complete work with minimum hazards and accidents	0	1
	Filing and linking frame parts	PC8. achieve smooth finish and safe to wear ornament	0	1
		PC9. make strong but flexible joints	0	1
		PC10. achieve clean soldering without damage to frame	0	1
	Controlling gold loss	PC11. achieve improved productivity and quality as per design requirement	0	1
		PC12. maintain loss limit as per company's loss margin policy	0	1
		PC13. undertake regular gold-dust cleaning as prescribed by company	0	1
		PC14. account for loss and maintain related documentation	0	1

CRITERIA FOR ASSESSMENT OF TRAINEES				
	Quality of output	PC15. achieve size, weight, finish, detailing and dimensions as per design	0	1
		PC16. maintain utility factor maintained for ease of wearing and safety	0	1
		PC17. ensure that joints are firm and flexible and frame is even	0	1
		PC18. achieve QC-okayed base frame	0	1
	Handling problems	PC19. deliver complete product on time by reporting problems faced or anticipated well in advance	0	1
		Sub Total	1	19
7. G&J/N0802 Set gemstones on jewellery frame	Gemstones setting	PC1. achieve flawless setting as per design requirement	0	1
		PC2. achieve even colour of stones set, i.e., no discolouration or breakage during setting	0	1
		PC3. set stones securely	0	1
	Controlling gold loss	PC4. maintain loss as per company's loss margin policy	0	1
		PC5. document accounts on job sheet as per company policy	0	1
	Productivity	PC6. deliver in time	0	1
		PC7. deliver number of frames with gemstones set as per target and of design quality	0	1
	Quality of output	PC8. deliver defect free and evenly set	0	1
		PC9. deliver damage free stones of even colour and well secured	1	1
		PC10. deliver maximum number of QC-okayed settings	0	1
	Handling problems	PC11. deliver complete jewellery on time by reporting problems faced or anticipated well in advance	0	1
			Sub Total	1
8. G&J/N1901 Maintain IPR and respect copyright	Respecting IPR	PC1. Spot plagiarism and report	1	0
		PC2. understand rationale of patents and IP	1	0
		PC3. Avoid being involved in IPR violations	1	0
			Sub Total	3
9. G&J/ N1903 Coordinate with others	Interaction with supervisor	PC1. understand the work output requirements	0	2
		PC2. comply with company policy and rule	0	1
		PC3. deliver quality work on time as required by reporting any anticipated reasons for delays	0	2
	Interactions with colleagues and other departments	PC4. put team over individual goals	0	1
		PC5. conflicts resolution and multi-tasking	0	2
		Sub Total	0	8
10. G&J/N1907 Maintain safe work environment	Understanding of potential sources of	PC1. spot and report potential hazards on time	0	1
		PC2. follow company policy and rules regarding hazardous materials	0	1

CRITERIA FOR ASSESSMENT OF TRAINEES				
	accidents and communicating	PC3. deliver quality work on time as required by reporting any anticipated reasons for delays	0	1
		Sub Total	0	3
		Total	20	80

