

## 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

**Contact Us:**  
GJSCI, Mumbai

E-mail: [coo@gjsi.org](mailto:coo@gjsi.org)



### Contents

1. Introduction and Contact..... P1
2. Qualifications Pack .....P2
3. OS Units..... P3
4. Glossary of Key Terms.....P35
5. Nomenclature of QP & NOS.....P37

### Introduction

#### Qualifications Pack-Goldsmith: Component Maker

**SECTOR:** GEMS & JEWELLERY

**SUB-SECTOR:** Handmade gold and gems-set jewellery

**OCCUPATION:** Gold smithy (Basic)

**REFERENCE ID:** G&J/Q0603

**ALIGNED TO:** NCO-2004/7313.28

**Goldsmith-component maker:** Also known as Artisan or Bench-worker, Goldsmith is the most important job role in Indian handmade-gold jewellery manufacturing sector. The goldsmith makes components which are required for handmade jewellery.

**Brief Job Description:** The individual at work mainly works with hand tools to create components such as balls, wire, stampings, strips and chains required for completing the jewellery piece. The individual is responsible for delivering components with minimum gold loss.

**Personal Attributes:** The job requires the individual to have: attention to details; good eyesight; steady hands; ability to work for long hours in sitting position; and a lot of patience. The individual must also be able to use reflective skills in order to develop improved designs and work processes, and analytical skills to avoid errors and hazards.

Job Details

Qualifications Pack Code	G&J/Q0603		
Job Role	Goldsmith - component maker		
Credits(NVEQF/NVQF/NSQF)	TBD	Version number	1.0
Sector	Gems & Jewellery	Drafted on	14/04/13
Sub-sector	Handmade and Gems-set Jewellery	Last reviewed on	30/07/13
Occupation	Gold smithy (Basic)	Next review date	15/07/15

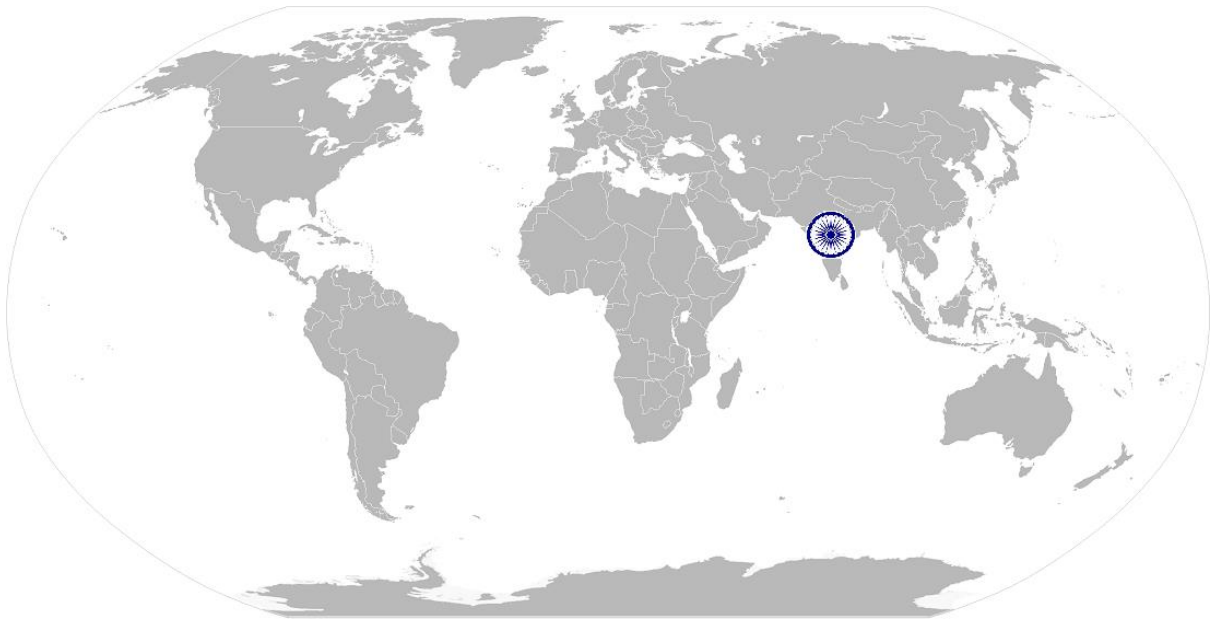
Job Role	<b>Goldsmith - Component maker</b> Also known as 'Artisan' or 'Bench-worker'
Role Description	Converting precious metal bar or pieces into jewellery components of required size, weight and quality by employing the appropriate techniques for a product, while minimising hazards and working independently
NVEQF/NVQF level	3
Minimum Educational Qualifications	Preferably 10 <sup>th</sup> standard passed
Maximum Educational Qualifications	
Training	Not Applicable
Experience	Not Applicable
Applicable National Occupational Standards (NOS)	<b>Compulsory:</b> <ol style="list-style-type: none"> <li><a href="#">G&amp;J/N0601 Draw wire or strip from precious metal or alloy bar</a></li> <li><a href="#">G&amp;J/N0602 Make ball from precious metal or alloy</a></li> <li><a href="#">G&amp;J/N0603 Stamp the gold sheet</a></li> <li><a href="#">G&amp;J/N0604 Make gold chain</a></li> <li><a href="#">G&amp;J/N9910 Maintain IPR and respect copyright</a></li> <li><a href="#">G&amp;J/N9912 Coordinate with co-workers</a></li> <li><a href="#">G&amp;J/N9914 Maintain safe work environment</a></li> </ol> <b>Optional:</b> Not applicable
Performance Criteria	As described in the relevant OS units

**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**

<b>Unit Code</b>	<b>G&amp;J/N0601</b>
<b>Unit Title (Task)</b>	<b>Draw wire or strip from bars of precious metal or alloy</b>
<b>Description</b>	This OS unit is about drawing gold wire for use in jewellery making.
<b>Scope</b>	<p>This unit/task covers the following:</p> <p>Order precious metal or alloy for making wire or strip</p> <ul style="list-style-type: none"> <li>understand specifications in terms of required thickness of wire to be drawn as per design</li> <li>assess quantity of precious metal required for drawing the wire or rolling the strip</li> </ul> <p>Draw the wire and strip</p> <ul style="list-style-type: none"> <li>roll metal to the appropriate thickness using wire drawing or rolling machine</li> <li>sharpen one end of the metal to ease the pass through of the metal in draw-plate hole</li> <li>push the metal through the draw-plate hole and then pull out</li> <li>repeat the process through consecutive small holes to get the required thickness of wire</li> <li>pass metal through roller machine or mill to make into strips of appropriate thickness</li> </ul> <p>Anneal the wire or strip for malleability</p> <ul style="list-style-type: none"> <li>assess whether the wire or strip type (e.g., spring) requires annealing</li> <li>treat the wire or strip with heat using gas torch or furnace</li> <li>set temperature according to the thickness of the wire or strip</li> <li>remove the wire or strip from heat and quench in water to cool immediately</li> <li>repeat the heating and cooling process after every drawing or rolling</li> </ul> <p>Control precious metal loss</p> <ul style="list-style-type: none"> <li>collect precious metal dust or fragments dispersed during the day</li> <li>tally account as per allowed standards for wire making</li> <li>conduct regular cleaning for collection of gold as per company policy</li> </ul> <p>Detect product defects and return completed wire to supervisor</p> <ul style="list-style-type: none"> <li>identify the type of defect, e.g., damaged beyond repair</li> <li>handover defective wire to supervisor for melting or use elsewhere</li> <li>rework on any quality check feedback and return</li> <li>ensure timely delivery</li> </ul> <p>Report problems related to</p> <ul style="list-style-type: none"> <li>roll machine failure</li> <li>tools shortage and their maintenance related issues</li> <li>reasons for anticipated delays that may adversely affect delivery</li> </ul>

**G&J/N0601**

**Draw wire or strip from precious metal or alloy bar**

	<ul style="list-style-type: none"> <li>malfunction of annealing torch or furnace</li> <li>poor quality of gold received</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Making wire or strip</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. make wire of required thickness and evenness, not over drawn or split or cracked</p> <p>PC2. limit precious-metal loss of damaged metal rod or wire</p> <p>PC3. deliver in time, the wires to supervisor</p> <p>PC4. meet productivity target</p> <p>PC5. complete work with minimum hazards and accidents</p>
<b>Handling problems</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC6. deliver complete components on time by reporting well in advance, any problems faced or anticipated</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (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; incentives; delivery standards; 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>B. Technical Knowledge</b>	<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>
<b>Skills (S) [Optional]</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Basic reading and writing skills</b>
	<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>
	<b>Measuring skills</b>
	<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>

**G&J/N0601**

**Draw wire or strip from precious metal or alloy bar**

<b>B. Professional Skills</b>	<b>Using tools and machines</b>
	<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>
	<b>Reducing precious metal loss</b>
	<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>
	<b>Reflective thinking</b>
	<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>
	<b>Critical thinking</b>
	<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**

## **NOS Version Control**

NOS Code	G&J/N0601		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	14/04/13
Industry Sub-sector	Handmade Gold and Gems-set Jewellery	Last reviewed on	30/07/13
		Next review date	15/07/15



**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> <p>Order precious metal or metal for making ball</p> <ul style="list-style-type: none"> <li>understand design or specifications in terms of required size</li> <li>assess the quantity of gold required to make the specified number of balls</li> </ul> <p>Make the balls or beads</p> <ul style="list-style-type: none"> <li>draw sheets or strips of precious metal of required thickness based on the width and size of the ball to be made</li> <li>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</li> <li>repeat annealing process for every stage of drawing</li> <li>cut the sheet or strip as per the diameter of the ball</li> <li>create two hemispheres of the ball</li> <li>lock the two hemispheres and join them by heating</li> <li>shape the ball in circular mills with grooves</li> <li>or use hollow ball making machine to make gold balls from sheets</li> </ul> <p>File the ball segments</p> <ul style="list-style-type: none"> <li>cut any sharp edges in the ball as per design</li> <li>file for smooth finish of joined periphery as per the design requirement</li> <li>file outer surface as per design</li> </ul> <p>Control gold loss</p> <ul style="list-style-type: none"> <li>collect precious-metal dust and fragments dispersed during the day</li> <li>tally account and record on job sheet</li> <li>conduct regular cleaning for collection of gold as per company policy</li> </ul> <p>Detect defects, rectify and return completed ball to supervisor</p> <ul style="list-style-type: none"> <li>understand the type of defect and rectify</li> <li>handover defective balls to supervisor if there is problem in rectifying</li> <li>ensure timely delivery</li> </ul> <p>Report problems related to:</p> <ul style="list-style-type: none"> <li>tools shortage and their maintenance related issues</li> <li>machine failure</li> <li>reasons for anticipated delays that may adversely affect delivery</li> </ul>

**G&J/N0602**

**Make ball from precious metal or alloy**

Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
<b>Ball making</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. make balls or beads made of required size and finish as per design</p> <p>PC2. make number of balls against the daily target given</p> <p>PC3. avoided wastage in making different sizes of balls</p> <p>PC4. deliver in time the required quantity of balls</p> <p>PC5. complete the work with minimum hazards and accidents</p>
<b>Handling problems</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC6. deliver completed balls on time by reporting problems faced or anticipated well in advance</p>
Knowledge and Understanding (K)	
<b>A. Organizational Context</b> (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; incentives; delivery standards; 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>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>SB1. uses of different types of tools and machines used in ball making</p> <p>SB2. gold alloy properties such as strength and malleability</p> <p>SB3. heat treatments and intensity effect with respect to different types of gold alloys</p> <p>SB4. potential work hazards, particularly, when using hand and machine tools</p>
Skills (S) [Optional]	
<b>A. Core Skills/ Generic Skills</b>	<b>Basic reading and writing skills</b>
	<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>
	<b>Measuring skills</b>
	<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>
<b>B. Professional Skills</b>	<p><b>Reducing precious metal loss</b></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>

**G&J/N0602**

**Make ball from precious metal or alloy**

	SB6. how to suggest improvements in order to reduce precious metal loss limits
	<b>Using tools and machines</b>
	The user/individual on the job needs to know and understand how: SB7. to work with the machines and tools used in ball making such as: roller 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 SB8. to work in a safe environment, i.e., without injuries
	<b>Reflective thinking</b>
	The user/individual on the job needs to know and understand how to: 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
	<b>Critical thinking</b>
	The user/individual on the job needs to know and understand how: SB11. to spot process disruptions and delays SB12. to avoid hazards when using roller machine or during annealing

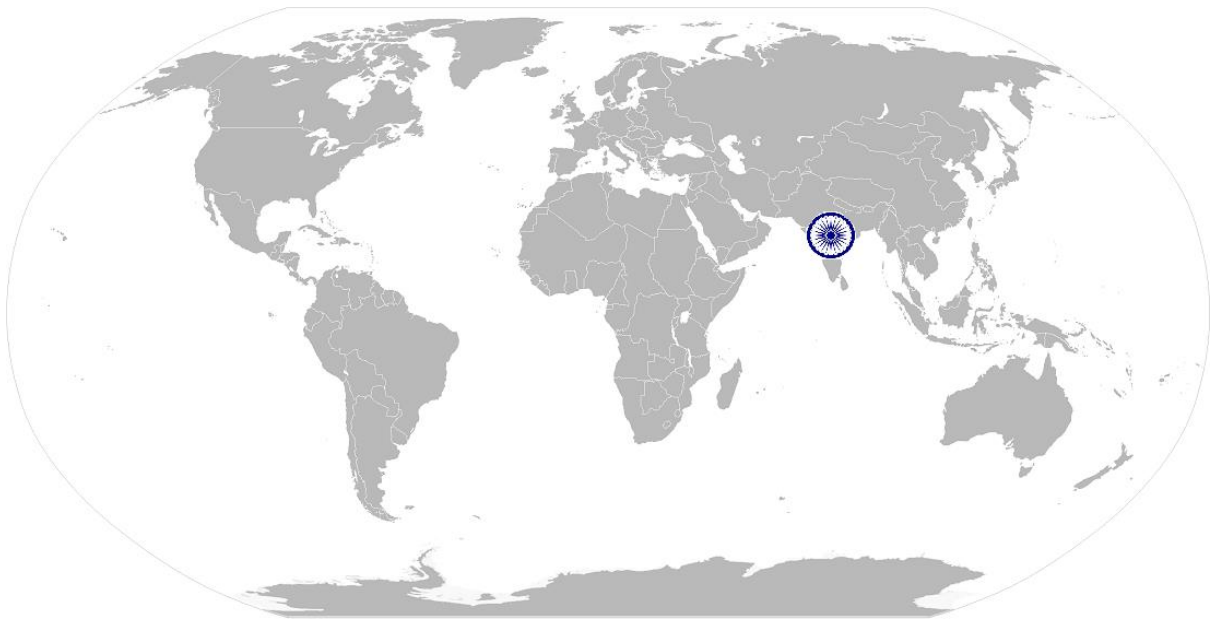
**G&J/N0602**

**Make ball from precious metal or alloy**

## **NOS Version Control**

<b>NOS Code</b>	<b>G&amp;J/N0602</b>		
<b>Credits(NVEQF/NVQF/NSQF) [OPTIONAL]</b>	<b>TBD</b>	<b>Version number</b>	<b>1.0</b>
<b>Industry</b>	<b>Gems &amp; Jewellery</b>	<b>Drafted on</b>	<b>14/04/13</b>
<b>Industry Sub-sector</b>	<b>Handmade Gold and Gems-set Jewellery</b>	<b>Last reviewed on</b>	<b>30/07/13</b>
		<b>Next review date</b>	<b>15/07/15</b>

# 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 on the gold sheet**

**National Occupational Standard**

<b>Unit Code</b>	<b>G&amp;J/N0603</b>
<b>Unit Title (Task)</b>	<b>Stamp patterns on gold or its alloy</b>
<b>Description</b>	This OS unit is about stamping patterns: on gold sheet in order to attach to main frame or on the jewellery itself
<b>Scope</b>	<p>This unit/task covers the following:</p> <p>Order precious metal or alloy for stamping</p> <ul style="list-style-type: none"> <li>understand design or specifications to decide on the type of dies or moulds to be used</li> <li>understand the tolerances required for stamping</li> <li>assess the quantity of gold required to make the specified quantity of stamped pieces</li> </ul> <p>Stamp the gold sheet</p> <ul style="list-style-type: none"> <li>draw from precious metal rods or bars sheets or strips of required thickness as per design specification</li> <li>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</li> <li>repeat annealing process for every stage of drawing</li> <li>select the die or mould of the specified pattern for use in the die machine</li> <li>insert the sheet or strip in the die machine and stamp the specified design</li> </ul> <p>File the stamped piece</p> <ul style="list-style-type: none"> <li>understand jewellery design requirements such as correct length, bend, flexibility, colour, evenness, size and embellishments to follow</li> <li>cut any sharp edges as per the design requirement</li> <li>grind for smooth surface as per the design requirement</li> <li>smooth outer periphery surface as per design</li> </ul> <p>Control gold loss</p> <ul style="list-style-type: none"> <li>collect gold dispersed during the day such as remaining parts of sheet or strip, dust and fragments</li> <li>tally account as per allowed standards for stamping</li> <li>conduct regular and controlled environment cleaning for collection</li> </ul> <p>Detect defects, rectify and return stamped piece to supervisor</p> <ul style="list-style-type: none"> <li>identify the type of defect and handover it over to supervisor for melting or use elsewhere</li> <li>rework on quality check feedback and return to supervisor</li> <li>ensure timely delivery</li> <li>return the dies and moulds to store department in charge</li> <li>return gold dust to supervisor</li> </ul>

**G&J/N0603**

**Stamp on the gold sheet**

	<p>Report problems about:</p> <ul style="list-style-type: none"> <li>• machine failures</li> <li>• tools shortage and their maintenance related issues</li> <li>• reasons for anticipated delays that may adversely affect delivery</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Stamping</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. make sheet for stamping without damaging the precious metal</p> <p>PC2. maintain accepted tolerance levels</p> <p>PC3. make number of stamped pieces made for specified design</p> <p>PC4. maintain gold loss maintained within prescribed limit</p> <p>PC5. deliver in time</p> <p>PC6. achieve productivity as per target</p> <p>PC7. complete work with minimum hazards and accidents</p>
<b>Problems handling</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC8. deliver complete product on time by reporting problems faced or anticipated well in advance</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (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; incentives; delivery standards; 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>B. Technical Knowledge</b>	<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>
<b>Skills (S) [Optional]</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Basic reading and writing skills</b>
	<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>
	<b>Calculation and geometry skills</b>
	<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>



**G&J/N0603**

**Stamp on the gold sheet**

	SA4. to get the symmetry of design right
<b>B. Professional Skills</b>	<b>Reducing precious metal loss</b>
	The user/individual on the job needs to know and understand: 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
	<b>Using tools and machines</b>
	The user/individual on the job needs to know and understand how: 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
	<b>Reflective thinking</b>
	The user/individual on the job needs to know and understand how to: 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
	<b>Critical thinking</b>
	The user/individual on the job needs to know and understand how: SB11. to spot process disruptions and delays SB12. to avoid hazards when using stamping or roller machine or during annealing

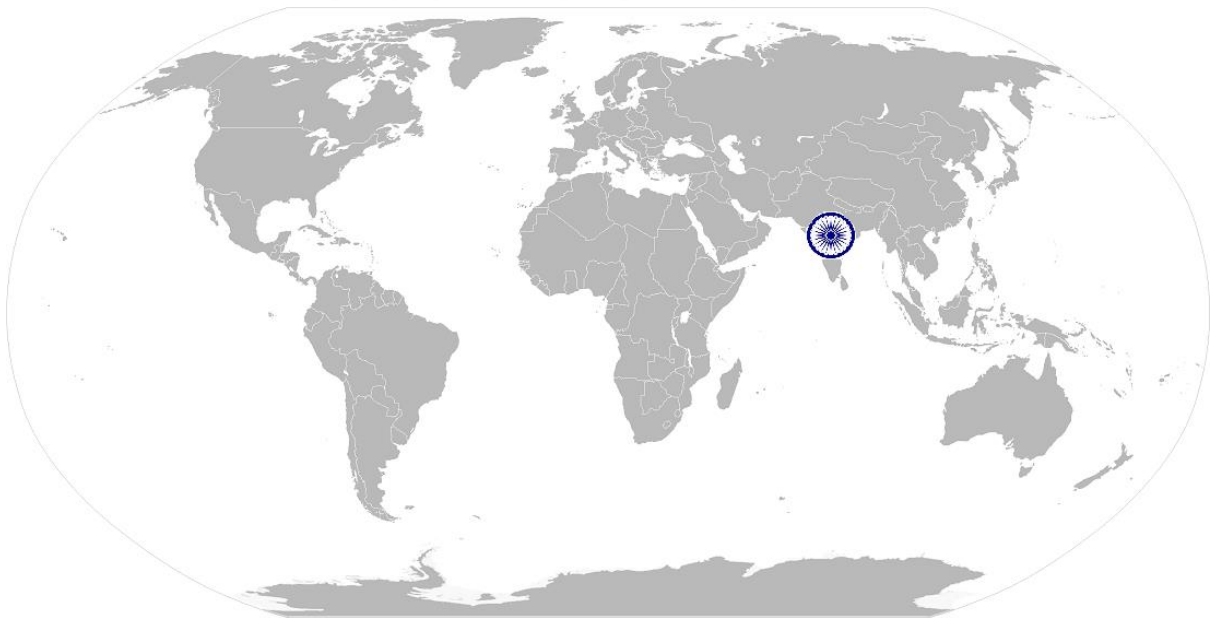
**G&J/N0603**

**Stamp on the gold sheet**

## **NOS Version Control**

NOS Code	G&J/N0603		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	14/04/13
Industry Sub-sector	Handmade Gold and Gems-set Jewellery	Last reviewed on	30/07/13
		Next review date	15/07/15

# 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**

<b>Unit Code</b>	<b>G&amp;J/N0604</b>
<b>Unit Title (Task)</b>	<b>Make chain from gold bar</b>
<b>Description</b>	This OS unit is about making chain for completing the design of jewellery
<b>Scope</b>	<p>This unit/task covers the following:</p> <p>Order precious metal for making chain</p> <ul style="list-style-type: none"> <li>understand design or specifications in terms of design, size and length</li> <li>assess the quantity of precious metal or gold alloy required to make the specified quantity of chain</li> </ul> <p>Make chain from gold or alloy</p> <ul style="list-style-type: none"> <li>roll metal to required thickness using wire drawing or roller machine</li> <li>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</li> <li>repeat the annealing process after every rolling or drawing</li> <li>make wire of required width</li> <li>cut the wire into small piece of same length as required</li> <li>solder the ends to shape as a ring</li> <li>connect all the piece of wire together to make the chain as per design using the weaving or soldering method as specified</li> <li>achieve clean finish</li> </ul> <p>File the chain components</p> <ul style="list-style-type: none"> <li>understand jewellery design requirements such as correct length, bend, flexibility, colour, evenness, size and embellishments to follow</li> <li>cut any sharp edges as per the design requirement</li> <li>grind for smooth surface as per the design requirement</li> <li>smoothen outer surface as per design</li> </ul> <p>Control gold loss</p> <ul style="list-style-type: none"> <li>collect gold dispersed during the day (dust and fragments)</li> <li>tally account as per allowed standards for chain making</li> <li>conduct regular and controlled environment cleaning for collection</li> </ul> <p>Detect defects and return completed chain to supervisor</p> <ul style="list-style-type: none"> <li>identify the type of defect, rectify and return</li> <li>handover the defective piece</li> <li>ensure timely delivery</li> <li>return gold dust generated and collected</li> </ul> <p>Report problems about:</p> <ul style="list-style-type: none"> <li>machine failures</li> <li>tools shortage and their maintenance related issues</li> <li>reasons for anticipated delays that may adversely affect delivery</li> </ul>

**G&J/N0604**

**Make gold chain**

Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
<b>Chain making</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. make wire for chain without damaging the gold</p> <p>PC2. make required length of chain as per the specified design</p> <p>PC3. limit loss to under prescribed standards</p> <p>PC4. deliver in time to next process</p> <p>PC5. achieve productivity as targeted</p> <p>PC6. complete work with minimum hazards and accidents</p>
<b>Handling problems</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC7. deliver complete product on time by reporting problems faced or anticipated well in advance</p>
Knowledge and Understanding (K)	
<b>A. Organizational Context</b> (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 or precious metal loss per product type; incentives; delivery standards; safety and hazards; security and 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>
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>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</p> <p>KB1. metallurgy (gold alloy properties such as strength, malleability)</p> <p>KB2. heat treatments and intensity effect with respect to different types of gold alloys</p> <p>KB3. potential work hazards, particularly, when using hand and machine tools as well as acids</p>
Skills (S) [Optional]	
<b>A. Core Skills/ Generic Skills</b>	<b>Basic reading and writing skills</b>
	The user/individual on the job needs to know and understand how:
	SA1. to read notes on design
	<b>Calculation and geometry skills</b>
	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
<b>B. Professional Skills</b>	<b>Using tools and machines</b>
	The user/individual on the job needs to know and understand how:
	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

**G&J/N0604**

**Make gold chain**

	SB1. to use soldering system
	SB2. to work in a safe environment, i.e., without injuries
	<b>Reflective thinking</b>
	The user/individual on the job needs to know and understand how: SB3. to find ways of reducing gold loss
	<b>Critical thinking</b>
	The user/individual on the job needs to know and understand how: SB5. to spot process disruptions and delays

**G&J/N0604**

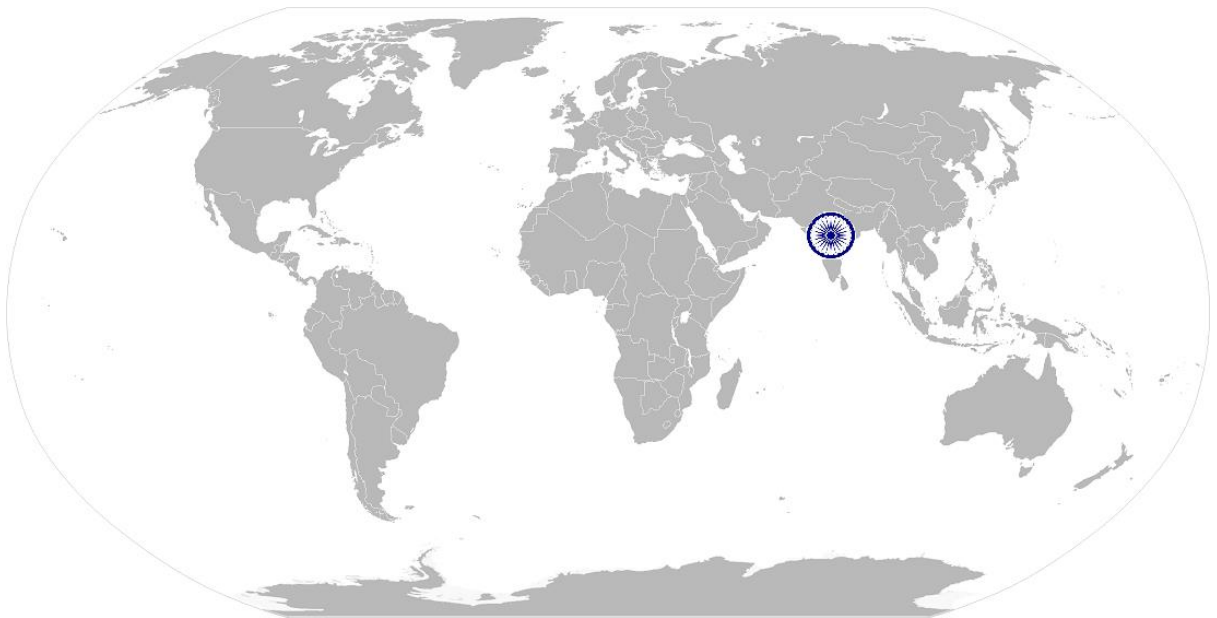
**Make gold chain**

## **NOS Version Control**

NOS Code	G&J/N0604		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	14/04/13
Industry Sub-sector	Handmade Gold and Gems-set Jewellery	Last reviewed on	30/07/13
		Next review date	15/07/15



# 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

<b>Unit Code</b>	<b>G&amp;J/N9910</b>
<b>Unit Title (Task)</b>	<b>Respect IPR of company as well as competitors</b>
<b>Description</b>	This OS unit is about maintaining company's IPR and avoiding infringement on copyright of others
<b>Scope</b>	<p>This unit/task covers the following:</p> <p>Protect company's Intellectual Property Rights (IPR)</p> <ul style="list-style-type: none"> <li>prevent leak of new designs to competitors by reporting on time</li> <li>be aware of any of company's product or design patents</li> <li>report IPR violations observed in the market, to supervisor or company heads</li> </ul> <p>Avoid infringement to copyright of other companies</p> <ul style="list-style-type: none"> <li>read copyright clause of the material published on the internet and any other printed material</li> <li>consult supervisor or senior management when in doubt about using publicly available information</li> <li>report any infringement observed in the company</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Respecting IPR</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. spot plagiarism and report</p> <p>PC2. understand rationale of patents and IPR</p> <p>PC3. avoid being involved in IPR violations</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b>	<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>B. Technical Knowledge</b>	<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>
<b>Skills (S) [Optional]</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Communication skills</b>
	<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>B. Professional Skills</b>	<b>Decision making</b>
	<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**

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

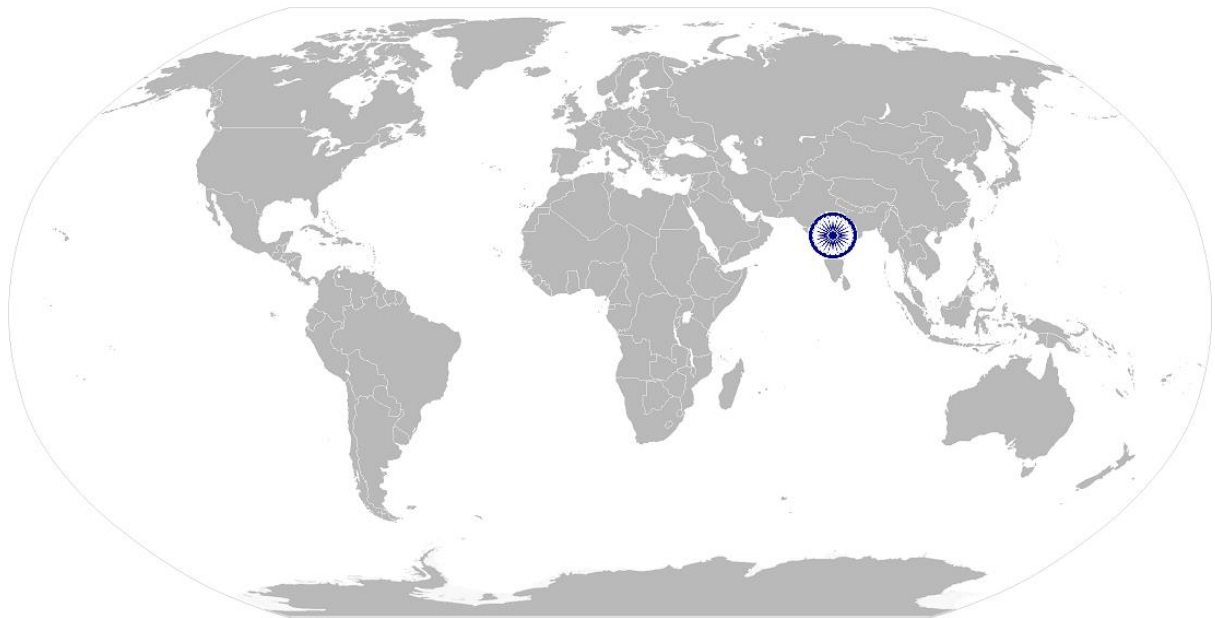
**G&J/N9910**

**Maintain IPR and respect copyright**

## **NOS Version Control**

<b>NOS Code</b>	<b>G&amp;J/N9910</b>		
<b>Credits(NVEQF/NVQF/NSQF) [OPTIONAL]</b>	<b>TBD</b>	<b>Version number</b>	<b>1.0</b>
<b>Industry</b>	<b>Gems &amp; Jewellery</b>	<b>Drafted on</b>	<b>14/04/13</b>
<b>Industry Sub-sector</b>	<b>Handmade Gold and Gems-set Jewellery</b>	<b>Last reviewed on</b>	<b>30/07/13</b>
		<b>Next review date</b>	<b>15/07/15</b>

# 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**

**National Occupational Standard**

<b>Unit Code</b>	<b>G&amp;J/N9912</b>
<b>Unit Title (Task)</b>	<b>Coordinate with co-workers</b>
<b>Description</b>	This OS unit is about communicating with colleagues and seniors in order to maintain smooth and hazards free work flow
<b>Scope</b>	<p>This unit/task covers the following:</p> <p>Interact with supervisor to:</p> <ul style="list-style-type: none"> <li>• receive work instructions and raw materials from reporting supervisor</li> <li>• communicate to reporting supervisor about process flow improvements, product defects received from previous process, repairs and maintenance of tools and machinery as required</li> <li>• communicate any potential hazards or expected process disruptions</li> <li>• handover completed work to supervisor</li> </ul> <p>Interact with colleagues within and outside the department to:</p> <ul style="list-style-type: none"> <li>• work as a team with colleagues and share work as per their or own work load and skills</li> <li>• work with colleagues of other departments such as frame making or component making or polishing or setting or stores</li> <li>• communicate and discuss work flow related difficulties in order to find solutions with mutual agreement</li> <li>• receive feedback from QC and rework in order to complete work on time</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Interaction with supervisor</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. understand the work output requirements</p> <p>PC2. comply with company policy and rule</p> <p>PC3. deliver quality work on time as required by reporting any anticipated reasons for delays</p>
<b>Interactions with colleagues and other departments</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC4. put team over individual goals</p> <p>PC5. conflicts resolution and multi-tasking</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (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>B. Technical Knowledge</b>	<p>The individual on the job needs to know and understand:</p> <p>KB1. how to communication effectively</p> <p>KB2. how to build team coordination</p>
<b>Skills (S) [Optional]</b>	
<b>A. Core Skills/ Generic Skills</b>	<p><b>Teamwork and some multitasking</b></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>B. Professional Skills</b>	<p><b>Decision making</b></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><b>Reflective thinking</b></p> <p>The individual on the job needs to know and understand:</p> <p>SB3. how to improve work process</p> <p><b>Critical thinking</b></p> <p>The individual on the job needs to know and understand:</p> <p>SB4. how to spot process disruptions and delays</p>



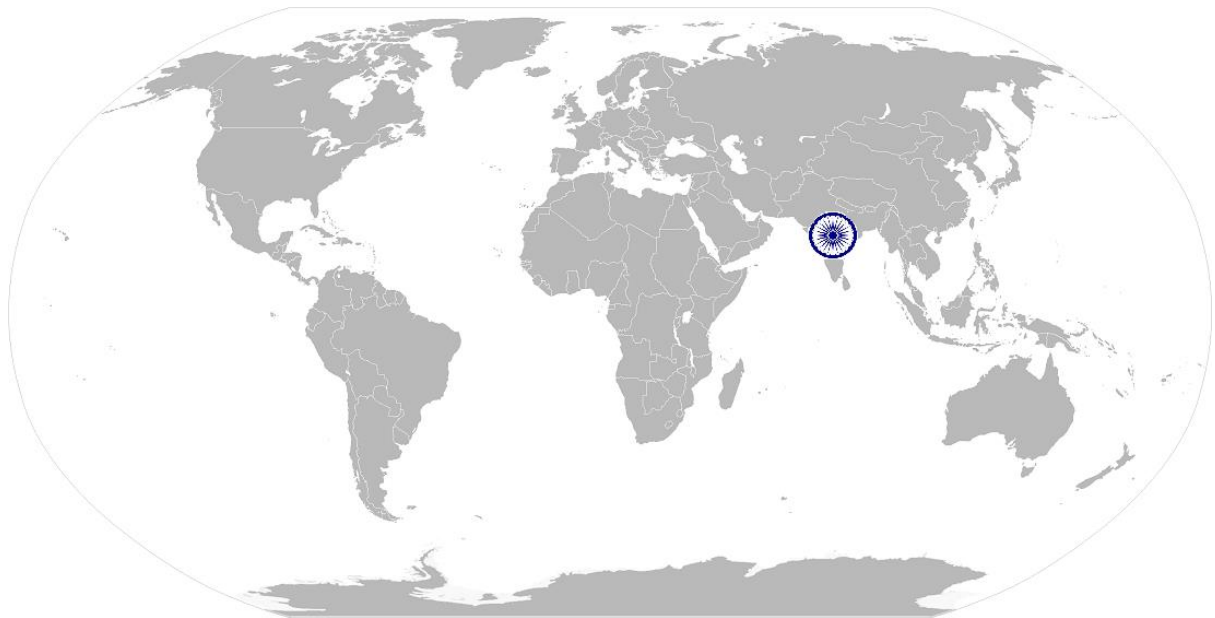
**G&J/N9912**

**Coordinate with co-workers**

## **NOS Version Control**

NOS Code	G&J/N9912		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	14/04/13
Industry Sub-sector	Handmade Gold and Gems-set Jewellery	Last reviewed on	30/07/13
		Next review date	15/07/15

# 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

### National Occupational Standard

<b>Unit Code</b>	<b>G&amp;J/N9914</b>
<b>Unit Title (Task)</b>	<b>Work towards having a safe work environment</b>
<b>Description</b>	This OS unit is about being aware of and communicating potential hazards and dangers of accidents on the job
<b>Scope</b>	<p>This unit/task covers the following:</p> <p>Understand potential sources of accidents</p> <ul style="list-style-type: none"> <li>to avoid accidents related to use of potentially dangerous chemicals, gas torches, sharp tools and hazards from machines</li> </ul> <p>Communicate to reporting supervisor about:</p> <ul style="list-style-type: none"> <li>process flow improvements to reduce anticipated or repetitive hazards</li> <li>mishandling of tools, machines or hazardous materials</li> <li>electrical problems that could result in accident</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Understanding of potential sources of accidents and communicating</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. spot and report potential hazards on time</p> <p>PC2. follow company policy and rules regarding hazardous materials</p> <p>PC3. deliver quality work on time as required by reporting any anticipated reasons for delays</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (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>B. Technical Knowledge</b>	<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>
<b>Skills (S) [Optional]</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Communication skills</b>
	<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>B. Professional Skills</b>	<b>Decision making</b>
	The individual on the job needs to know and understand: SB1. importance of reporting potential sources of danger SB2. appropriate actions to be taken in the event of an accident SB3. procedure for disposing of hazardous materials, safely and following environmental guidelines
	<b>Reflective thinking</b>
	The individual on the job needs to know and understand how: SB4. to learn from past mistakes regarding use of hazardous machines or chemicals or gas torches
	<b>Critical thinking</b>
	The individual on the job needs to know and understand: SB5. how to spot danger SB6. procedure to follow in the event of a fire or other hazard

**G&J/N9914**

**Maintain safe work environment**

## **NOS Version Control**

<b>NOS Code</b>	<b>G&amp;J/N9914</b>		
<b>Credits(NVEQF/NVQF/NSQF) [OPTIONAL]</b>	<b>TBD</b>	<b>Version number</b>	<b>1.0</b>
<b>Industry</b>	<b>Gems &amp; Jewellery</b>	<b>Drafted on</b>	<b>14/04/13</b>
<b>Industry Sub-sector</b>	<b>Handmade Gold and Gems-set Jewellery</b>	<b>Last reviewed on</b>	<b>30/07/13</b>
		<b>Next review date</b>	<b>15/07/15</b>

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

Acronyms

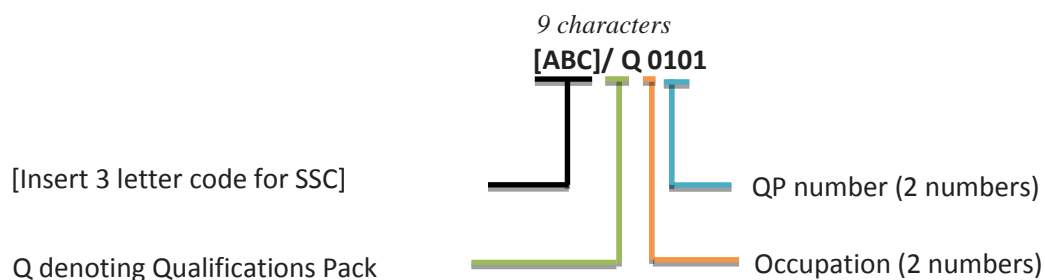
	specific designated responsibilities.
Core Skills/ Generic Skills	Core skills or generic skills are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. 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

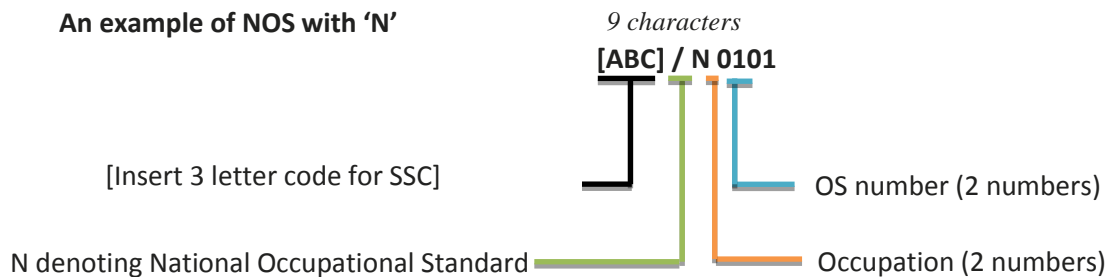
### Nomenclature for QP and NOS

#### 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 <b>QP</b> or <b>NOS</b>	Q
Next two numbers	Occupation code	07
Next two numbers	OS number	02

## CRITERIA FOR ASSESSMENT OF TRAINEES

**Job Role** Component Maker

**Qualification Pack** G&J/Q0603

**Sector Skill Council** Gem & Jewellery

### **Guidelines for Assessment**

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Individual assessment agencies will create theory question papers for candidates at every examination/training centre. (as per assessment criteria below)
4. Individual assessment agencies will create practical tests for skill evaluation for candidates at every examination/training centre. (as per assessment criteria below)
5. To pass the Qualification Pack, every candidate should score a minimum of 50% in theory and 70% in practical to successfully clear the assessment.
6. In case of successfully passing only certain number of NOS's, the candidate is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.

				Marks Allocation	
		Total Marks (80+20)	Out Of	Theory	Skills Practical
1. G&J/N0601 Draw wire or strip from precious metal or alloy bar	PC1. Make wire of required thickness and evenness, not over drawn or split or cracked	19	6	2	4
	PC2. Limit precious-metal loss of damaged metal rod or wire		5	1	4
	PC3. Deliver in time, the wires to supervisor		2	0	2
	PC4. Meet productivity target		2	0	2
	PC5. Complete work with minimum hazards and accidents		2	0	2

	PC6. Deliver complete components on time by reporting well in advance, any problems faced or anticipated		2	0	2
		<b>Total</b>	<b>19</b>	<b>3</b>	<b>16</b>
2. G&J/N0602 Make ball from precious metal or alloy	PC1. Make balls or beads made of required size and finish as per design	<b>20</b>	6	2	4
	PC2. Make number of balls against the daily target given		2	0	2
	PC3. Avoid wastage in making different sizes of balls		6	2	4
	PC4. Deliver in time the required quantity of balls		2	0	2
	PC5. Complete the work with minimum hazards and accidents		2	0	2
	PC6. Deliver completed balls on time by reporting problems faced or anticipated well in advance		2	0	2
		<b>Total</b>	<b>20</b>	<b>4</b>	<b>16</b>
3. G&J/N0603 Stamp on the gold sheet	PC1. Make sheet for stamping without damaging the precious metal	<b>20</b>	6	2	4
	PC2. Maintain accepted tolerance levels		4	1	3
	PC3. Make number of stamped pieces made for specified design		1	0	1
	PC4. Maintain gold loss maintained within prescribed limit		4	1	3
	PC5. Deliver in time		1	0	1
	PC6. Achieve productivity as per target		1	0	1
	PC7. Complete work with minimum hazards and accidents		2	0	2

	PC8. Deliver complete product on time by reporting problems faced or anticipated well in advance		1	0	1
		<b>Total</b>	<b>20</b>	<b>4</b>	<b>16</b>
4. G&J/N0604 Make gold chain	PC1. Make wire for chain without damaging the gold	<b>20</b>	6	2	4
	PC2. Make required length of chain as per the specified design		4	1	3
	PC3. Limit loss to under prescribed standards		4	1	3
	PC4. Deliver in time to next process		1	0	1
	PC5. Achieve productivity as targeted		2	0	2
	PC6. Complete work with minimum hazards and accidents		2	0	2
	PC7. Deliver complete product on time by reporting problems faced or anticipated well in advance		1	0	1
		<b>Total</b>	<b>20</b>	<b>4</b>	<b>16</b>
5. G&J/N9910 Maintain IPR and respect copyright	PC1. Spot plagiarism and report	<b>7</b>	3	1	2
	PC2. Understand rationale of patents and IPR		3	1	2
	PC3. Avoid being involved in IPR violations		1		1
		<b>Total</b>	<b>7</b>	<b>2</b>	<b>5</b>
6. G&J/N9912 Coordinate with others	PC1. Understand the work output requirements	<b>6</b>	2	1	1
	PC2. Comply with company policy and rule		1		1
	PC3. Deliver quality work on time as required by reporting any anticipated reasons for delays		1		1

	PC4. Put team over individual goals		1		1
	PC5. Conflicts resolution and multi-tasking		1		1
		<b>Total</b>	<b>6</b>	<b>1</b>	<b>5</b>
7. G&J/N9914 Maintain safe work environment	PC1. Spot and report potential hazards on time	<b>8</b>	3	1	2
	PC2. Follow company policy and rules regarding hazardous materials		3	0	3
	PC3. Deliver quality work on time as required by reporting any anticipated reasons for delays		2	1	1
		<b>Total</b>	<b>8</b>	<b>2</b>	<b>6</b>

