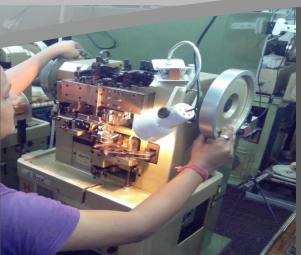




QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR GEMS & JEWELLERYINDUSTRY



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2.	Qualifications Pack P2
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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
- 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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Introduction

Qualifications Pack - CNC Machine Jewellery Maker

SECTOR: GEMS & JEWELLERY

SUB-SECTOR: Cast and Diamonds-Set Jewellery

OCCUPATION: Machine-made Jewellery Manufacturing

REFERENCE ID: G&J/Q3301

ALIGNED TO: NCO-NIL

CNC Machine Jewellery Maker: A CNC Machine Jewellery Maker produces jewellery products such as chains, bangles and bracelets by using Computer Numerical Control (CNC) machines.

Brief Job Description: The individual operated different types of CNC machines which manufacture chains, bangles, bracelets, etc., by setting dies of different sizes and shapes. Individual also solders the components to make the jewellery.

Personal Attributes: The job requires the individual to have good mathematical & analytical skills & have quick response, and ability to work in a process driven team. The individual must also have problem solving skills in order to maintain CNC machine and produce defect-free jewellery product.





Qualifications Pack Code	G&J/Q3301		
Job Role	CNC Machine Jewellery Maker		
Credits(NSQF)	TBD	Version number	1.0
Sector	Gems & Jewellery	Drafted on	29/05/13
Sub-sector	Cast and Diamond-set Jewellery	Last reviewed on	13/08/14
Occupation	Machine Jewellery Making	Next review date	13/08/15

Job Role	CNC Machine Jewllery Maker	
	Manufacturing chains, bangles, rings, bracelet, etc., by	
Role Description	using CNC machines and soldering them to form the jewellery	
NSQF level	4	
Minimum Educational Qualifications	Minimum: 12 th Standard Passed	
Maximum Educational Qualifications		
Training	Not applicable	
Experience	Not applicable	
Applicable National Occupational Standards (NOS)	Compulsory: 1. G&J/N3301 Manufacture chains, bangles, bracelets using CNC machine 2. G&J/N9901 Respect and maintain IPR 3. G&J/N9902 Coordinate with others 4. G&J/N9905 Maintain occupational health and safety	
	Optional: Not applicable	
Performance Criteria	As described in the relevant OS units	

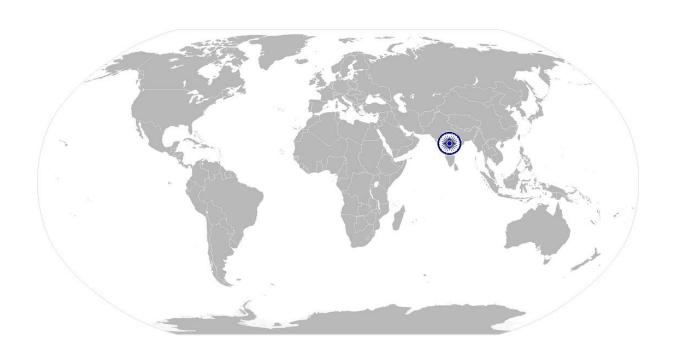






Manufacture chains, bangles, bracelets using CNC machines

National Occupational Standard



Overview

This unit is about using CNC machines for manufacturing a range of jewellery products such as chains, bangles, rings and bracelets in large quantity.







G&J/N3301 Manufacture chains, bangles, bracelets using CNC machines

Unit Code	G&J/N3301
Unit Title (Task)	Produce chains, bangles and bracelets using CNC machine (Instead of CNC, term "semi-automated & automated machines" should be used)
Description	This OS unit is about using CNC machine for producing a range of jewellery products such as chains, bangles and bracelets in large quantity
Scope	This unit/task covers the following: Receive the job sheet and materials Produce jewellery products Control gold loss Report problems in time

Performance Criteria(PC) w.r.t. the Scope

Element	Performance Criteria		
Producing jewellery	To be competent, the user/individual on the job must be able to:		
using CNC machine	PC1. collect job sheet for assessing the types of jewellery products and		
	quantities to be manufactured .		
	PC2. assess the various processes like sheet metal working, wire drawing,		
	cutting, machining, welding, soldering etc. to manufacture various		
	category of products.		
	PC3. assess the availability of tools, diesand fixtures required for the		
	manufacturing of the piece as per the drawing/design.		
	PC4. assess the amount of precious metal alloy required		
	PC5. interpret and understand the design requirement in terms of size, weight,		
	shape, design, etc.		
	PC6. repeatedly roll rod or strip of precious metal to finished thickness on a		
	continuous roll machine.		
	PC7. anneal the strip in a continuous strip annealing furnace		
	PC8. cut or slit the strip to the correct width for forming into different types of		
	jewellery products such as hollow/non-hollow chain, bangles, rings or ball		
	chains		
	PC9. make the hollow jewellery		
	PC10. feed the strip through a tube forming machine, the strip being folded as it passes through a series of dies.		
	PC11. fit the machine with an automatic welding device for welding formed strip edges together to produce a tube		
	PC12. equip the machine for introducing a metal core, such as round core for hollow chain.		
	PC13. further draw the tube through a series of dies to get the required size of		
	the tube		
	PC14. roll or draw the strip through special rolls or dies to produce a specific		
	shape or section, for producing bangles and earrings		
	PC15. operate specially designed winding machines to produce pointed and		
	twisted tubes for a specific type of jewellery		
	PC16. cut the length of chain or tube as per specification using cutting machine		
	PC17. bend and solder the strips to form the solid bangle or ring		







Gem & Jewellery Skill Council of India	National Occupational Standards / Corporation		
G&J/N3301 Manuf	acture chains, bangles, bracelets using CNC machines		
	PC18. under take various machining operations such as on the Faceting machines		
	using diamond tools to produce textured bangles		
	PC19. assemble links by fitting clasps, hooks, fasteners, etc.		
	PC20. clean and polish the jewellery product		
	PC21. accurately set up and calibrate CNC machine		
	22. select appropriate metal core and tools		
	PC23. make durable solders in the joints/links		
	PC24. regularly perform the annealing as per specification until the wire of		
	requisite size is produced		
	PC25. maintain the alignment of seam while winding the precious metal wire in		
	specific shape		
	PC26. select the type, size and thickness of the dies, core and tools according to jewellery design		
	PC27. accurately measure design dimensions of the jewellery products		
	PC28. perform machine operations with the precision at each stage of		
	manufacturing		
Controlling gold loss	To be competent, the user/individual on the job must be able to:		
and achieving	PC29. collect gold from CNC or jewellery making machines		
productivity	PC30. tally account as per specified standards		
productivity	PC31. conduct regular and controlled environment cleaning for collection		
	PC32. maintain the proportion of re-use of gold and new as per company		
	standards		
	PC33. minimise the precious metal loss		
	PC34. improve the production rate of machine made jewellery components		
	PC35. timely deliver each type of jewellery		
	PC36. produce number of jewellery products as per target given		
	PC37. report issues related to complexity of designs		
	PC38. inform about faulty equipment and report them to the appropriate person		
	PC39. report on reasons for anticipated delays that may adversely affect delivery		
Checking quality	To be competent, the user/individual on the job must be able to:		
	PC40. check quality of the finished jewellery product against design		
	PC41. produce quality approved jewellery products as per the design and		
	instructions given by production manager		
	PC42. minimise productions disruptions because of machine operational issues		
Knowledge and Understa	nding (K)		
	The user/individual on the job needs to know and understand:		
A. Organizational Context	KA1. company's policies on: quality, incentives, delivery standards, safety and		
Context	hazards, integrity and IPR, personnel management and dress code		
	KA2. importance of the individual's role in the workflow		
	KA3. reporting structure		
B. Technical	The user/individual on the job needs to know and understand:		
Knowledge	KB1. use of machines to cover operations such as strip cutting, tube making,		
Kilowieuge	seam welding, drawing, tube patterning (knurling), annealing, tube head		
	hammering, tube twisting, tube cutting and tube winding, other CNC		
	machines, etc.		

KB2. different type of jewellery products: rings, bracelets, pendants, necklace,







G&J/N3301 Manufa	acture chains, bangles, bracelets using CNC machines
	KB3. different type of metal alloys and their properties KB4. manufacturing techniques, tools, principles involved in production of precision jewellery products
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Reading and writing skills The user/ individual on the job needs to know and understand how to: SA1. read notes, designs and instructions for CNC-machine made jewellery SA2. read company rules and compliance documents SA3. read operating manuals and standard operating procedures Calculation and Geometry skills The user/individual on the job needs to know and understand how to: SA4. measure the size and thickness according to jewellery design SA5. assess accuracy of alignment of fixtures, links/joints
	Teamwork and multitasking The user/individual on the job needs to know and understand how to: SA6. share work load when multiple deliverables are required SA7. deliver the jewellery product or component on time
B. Professional Skills	Reading design The user/individual on the job needs to know and understand: SB1. the steps involved in machine-made jewellery manufacturing as per design Soldering operations The user/individual on the job needs to know and understand how to: SB2. achieve correct level of soldering in order to join the different components of jewellery piece SB3. ensure linking for different product types as per design requirement and utility of the product
	Reflective thinking The user/individual on the job needs to know and understand how to: SB4. improve work processes or greater productivity SB5. use correct posture while performing the job of the filing and assembling SB6. reduce precious metal loss SB7. place the tools on the working bench for effective work management SB8. improve productivity and increase efficiency based on past working experience Critical thinking The user/individual on the job needs to know and understand how to: SB1. anticipate process disruption and reasons for delay







G&J/N3301 Manufacture chains, bangles, bracelets using CNC machines

NOS Version Control

NOS Code	G&J/N3303		
Credits(NSQF)	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	29/05/13
Industry Sub-sector	Cast and Diamond-set Jewellery	Last reviewed on	13/08/14
Occupation	Master making	Next review date	13/08/15





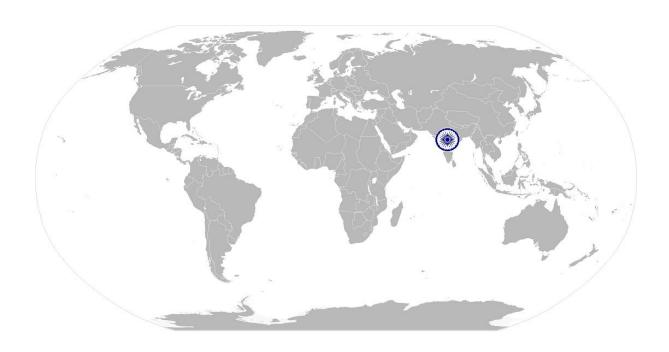






Respect and maintain IPR

National Occupational Standard



Overview

This unit is about respecting intellectual property rights of the company's products and designs as well as avoiding infringement on IPR of other companies.







Respect and maintain IPR

Unit Code	G&J/N9901
Unit Title (Task)	Maintain IPR of company and respect IPR of other companies
Description	This OS unit is about protecting company's IPR and avoiding infringement to IPR of other companies
Scope	 This unit/task covers the following: Protect company's Intellectual Property Rights (IPR) Avoid infringement to IPR of other companies
Performance Criteria(P	C) w.r.t. the Scope
Element	Performance Criteria
Respecting and Maintaining IPR	To be competent, the user/individual on the job must be able to: PC1. prevent leak of new designs to competitors by reporting on time PC2. be aware of any of company's product or design patents PC3. report IPR violations observed in the market, to supervisor or company heads PC4. read copyright clause of the material published on the internet and any other printed material PC5. consult supervisor or senior management when in doubt about using publicly available information PC6. report any infringement observed in the company PC7. spot plagiarism and report PC8. understand significance of patents and IPR PC9. avoid being involved in IPR violations
Knowledge and U	Jnderstanding (K)
C. Organizational Context	The user/individual on the job needs to know and understand: KA1. company's policies on IPR and plagiarism KA2. reporting structure KA3. company's unique product range
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. patents and IPR laws KB2. how IPR protection is important for competitiveness of a company
Skills (S) [Optional]	
C. Core Skills/	Communication skills
Generic Skills	The user/ individual on the job needs to know and understand how to: SA1. effectively communicate any observed IPR violations or order leaks
D. Professional Skills	Decision making
	The user/individual on the job needs to know and understand how to: SA1. report potential sources of violations
	Reflective thinking

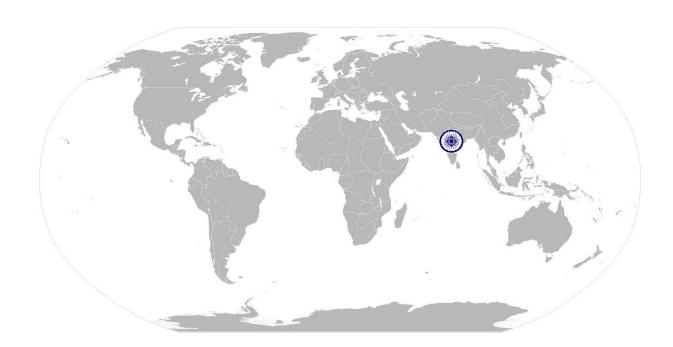






Respect and maintain IPR

G 660/11/2/01	respect the mantan II r
	The user/individual on the job needs to know and understand to:
	SA2. learn from past mistakes and report IPR violations on time
	Critical thinking
	The user/individual on the job needs to know and understand how to:
	SA3. spot signs of violations and alert authorities in time





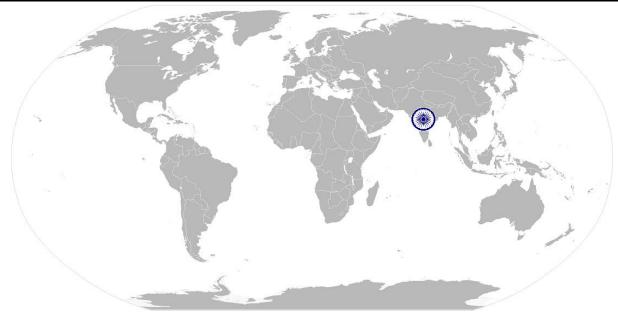




Respect and maintain IPR

NOS Version Control

NOS Code	G&J/N9901		
Credits(NSQF)	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	29/05/13
Industry Sub-sector	Cast and Diamond-set Jewellery	Last reviewed on	13/08/14
		Next review date	13/08/15



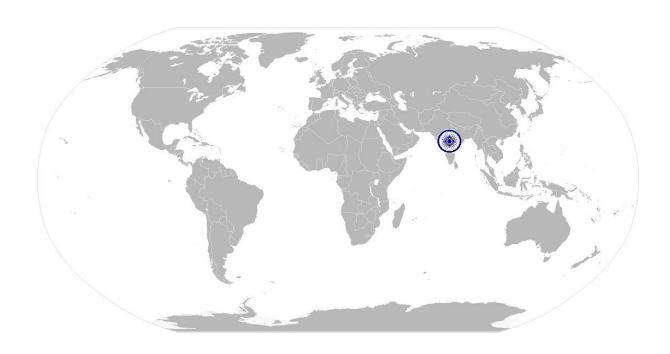






Coordinate with others

National Occupational Standard



Overview

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







Coordinate with others

Unit Code	G&J/N9902		
Unit Title	Interact with colleagues and seniors		
(Task) Description	This OS unit is about communicating with colleagues and seniors in order to achieve smooth and hazard-free work flow		
Scope	This unit/task covers the following: Interact with supervisor Interact with colleagues within and outside the department		
Performance Criteria(P	C) w.r.t. the Scope		
Element	Performance Criteria		
Interaction with supervisor Interactions with colleagues and other departments	To be competent, the user/individual on the job must be able to: PC1. receive work instructions and raw materials from reporting supervisor PC2. communicate to reporting supervisor about process-flow improvements, product defects received from previous process, repairs and maintenance of tools and machinery as required PC3. communicate any potential hazards or expected process disruptions PC4. handover completed work to supervisor PC5: understand the work output required to comply with company policy and rule PC7. deliver quality work on time as required by reporting any anticipated reasons for delays To be competent, the user/individual on the job must be able to: PC8. work as a team with colleagues and share work as per their or own work load and skills PC9. work with colleagues of other departments PC10. communicate and discuss work flow related difficulties in order to find solutions with mutual agreement PC11. receive feedback from qc and rework in order to complete work on time PC12. put team over individual goals PC13. be able to resolve conflicts PC14. learn how to multi-task relevant activities		
Knowledge and Unders	standing (K)		
A. Organizational Context	The user/individual on the job needs to know and understand: KA1. company's policies on: preferred language of communication, reporting and escalation policy, quality delivery standards, and personnel management KA2. reporting structure		
B. Technical Knowledge	The user/individual on the job needs to know and understand how to: KB1. communicate effectively KB2. build team coordination		







Coordinate with others

Skills (S) [Optional]	Skills (S) [Optional]				
A. Core Skills/	Communication skills				
Generic Skills	The individual on the job needs to know and understand how to:				
	SA1. read and write preferred language of communication as prescribed by the				
	company				
	SA2. read job sheets and interpret technical details mentioned in the jobsheet				
B. Professional Skills	Decision making				
	The individual on the job needs to know and understand:				
	SB1. how to spot and communicate potential areas of disruptions to work process				
	and report the same				
	SB2. when to report to supervisor and when to deal with a colleague individually,				
	depending on the type of concern				
	Reflective thinking				
	The individual on the job needs to know and understand how to:				
	SB3. improve work processes by interacting with others and adopting best				
	practices				
	Critical thinking				
	The individual on the job needs know and understand how to:				
	SB4. spot process disruptions and delays and report and communicate with				
	solutions				



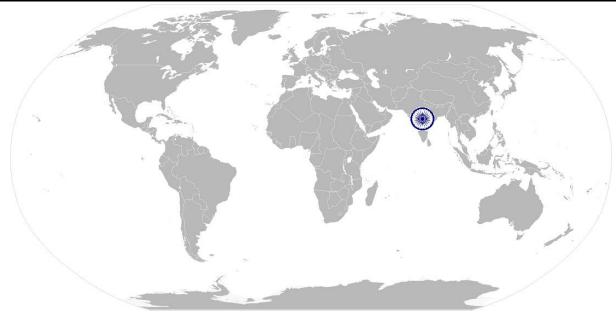




Coordinate with others

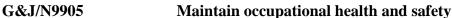
NOS Version Control

NOS Code	G&J/N9902		
Credits(NSQF)	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	29/05/13
Industry Sub-sector	Cast and diamond-set jewellery	Last reviewed on	13/08/14
		Next review date	13/08/15



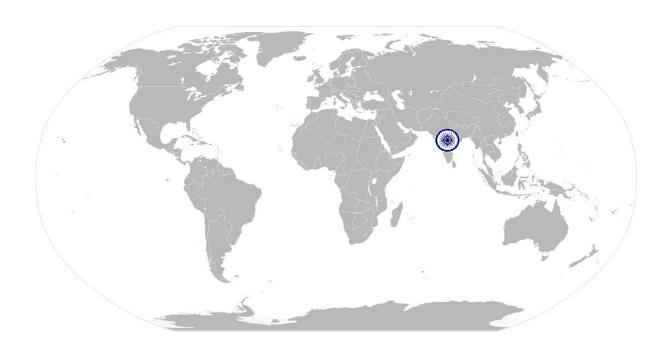








National Occupational Standard



Overview

This unit is about commitment towards reporting potential hazards, taking preventive measures to contain accidents in order to make the work environment safe for self and colleagues and maintaining occupational health and safety.







Maintain occupational health and safety

G&J/N9905
Maintain occupational health and safety
This OS unit is about being aware of, communicating and taking steps towards minimizing potential hazards and dangers of accidents on the job and maintaining occupational health and safety
This unit/task covers the following:
Understand potential sources of accidents
Use safety gear to avoid accidents
Actively participate in the health and safety awareness campaigns
Communicate to reporting supervisor about:
PC) w.r.t. the Scope
Performance Criteria
To be competent, the user/individual on the job must be able to: PC1. understand potential sources of accidents in order to avoid accidents related to use of potentially dangerous chemicals, sharp tools, hazards from machines and other equipment such as heating amps PC2. spot and report potential hazards on time PC3. follow company policy and rules regarding use of hazardous materials PC4. attend and actively participate in the health and safety campaigns organised by the company PC5. Process flow improvements that can reduce anticipated or repetitive hazards PC6. Mishandling of tools, machines or hazardous materials PC7. Electrical problems that could result in accident To be competent, the user/individual on the job must be able to: PC8. use or wear safety gear as per the rules of the company PC9. attend fire drills organised by the company or industrial zone PC10. learn first aid procedure
PC11. be alert about designated assembly area in the event of an emergency PC12. read and understand the evacuation and emergency procedures
standing (K)
The user/individual on the job needs to know and understand: KA1. company's policies on: safety and hazards and personnel management KA2. reporting structure
The user/individual on the job needs to know and understand: KB1. how different chemicals react and what could be the danger from them KB2. how to use machines and tools without suffering bodily harm







G&J/N9905 Maintain occupational health and safety

Skills (S) [Optional]					
A. Core Skills/	Communication skills				
Generic Skills	The individual on the job needs to know and understand how to:				
	SA1. effectively communicate the danger				
	Organising skills				
	The individual on the job needs to know and understand how to:				
	SA2. keep all the tools in an organised manner so as to avoid accidents				
	SA3. keep the work environment safe and clean				
B. Professional Skills	Decision making				
	The individual on the job needs to know and understand how to:				
	SB1. report potential sources of danger				
	SB2. follow prescribed procedure in the event of an accident				
	SB3. wear appropriate safety gear to avoid an accident				
	San to train an accordance to the san to train an accordance to				
	Reflective thinking				
	The individual on the job needs to know and understand to:				
	SB4. learn from past mistakes regarding use of hazardous machines or chemicals				
	Critical thinking				
	he individual on the job needs to know and understand how to:				
	SB5. spot dangers				
	Decision making				
	The individual on the job needs to know and understand how to:				
	SB6. report potential sources of danger				
	SB7. follow prescribed procedure in the event of an accident				
	SB8. wear appropriate safety gear to avoid an accident				



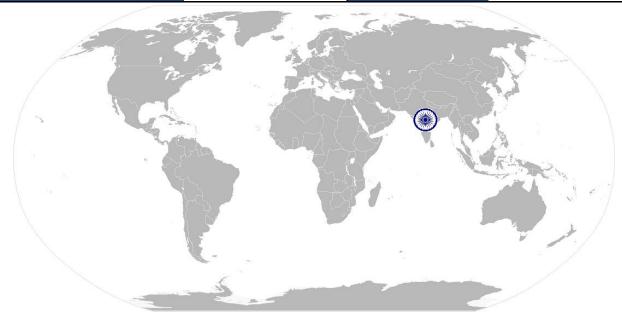




Maintain occupational health and safety

NOS Version Control

NOS Code	G&J/N9905		
Credits(NSQF)	TBD	Version number	1.0
Industry	Gems & Jewellery	Drafted on	29/05/13
Industry Sub-sector	Cast and diamond-set jewellery	Last reviewed on	13/08/14
		Next review date	13/08/15







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	Knowledge and understanding are statements which together specify the		
Understanding	technical, generic, professional and organisational specific knowledge		
Organisational Context	that an individual needs in order to perform to the required standard. Organisational context includes the way the organisation is structured		
Organisational Context	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		



Qualifications Pack for CNC Machine Jewellery Maker



	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
CAD	Computer Aided Design
CAM	Computer Aided Manufacturing
CNC	Computer Numerical Control
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

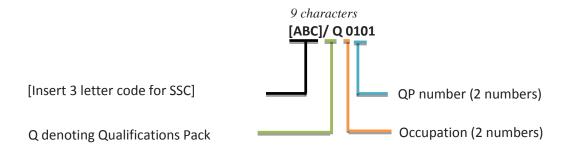




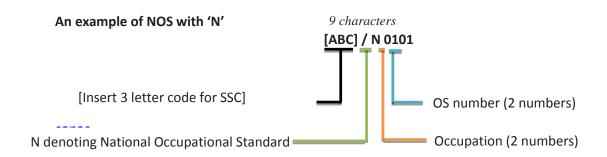
Annexure

Nomenclature for QP and NOS

Qualifications Pack



Occupational Standard



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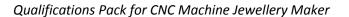
Qualifications Pack for CNC Machine Jewellery Maker



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 Q P or N OS	N
Next two numbers	Occupation code	01
Next two numbers	OS number	01







Job Role Qualification Pack Sector Skill Council

CRITERIA FOR ASSESSMENT OF TRAINEES

CNC Machine Jewellery Maker CNC Machine Jewellery Maker 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
	Producing resin based prototype using CAM machine	PC1. accurately set up and calibrate CNC machine	2	8
		PC2. select appropriate metal core and tools	2	8
		PC3. make durable solders in the joints/links	2	8
		PC4. regularly perform the annealing as per specification until the wire of requisite size is produced	1	8
		PC5. maintain the alignment of seam while winding the precious metal wire in specific shape	1	8
1. G&J/N3301 Manufacture		PC6. select the type, size and thickness of the dies, core and tools according to jewellery design	1	5
chains, bangles,		PC7. accurately measure design dimensions of the jewellery products	1	5
bracelets using		PC8. perform machine operations with the precision at each stage of manufacturing	1	5
CNC machine		PC9. minimise the precious metal loss	1	5
	Productivity Quality & Output	PC10. improve the production rate of machine made jewellery components	0	5
		PC11. timely deliver each type of jewellery	0	4
		PC12. produce number of jewellery productsas per target giveni	0	3
		PC13. produce quality approved jewellery products as per the design and instructions given by production manager	0	2
		PC14. minimise productions disruptions because of machine operational issues	0	1
		Sub Total	12	75
2 22 1/112221		PC1. be able to spot plagiarism and report	1	0
2. G&J/N9901	Respecting & Maintaining IPR	PC2. be aware of patents and IPR	1	0
Respect &		PC3. not be involved in IPR violations	1	0
Maintain IPR		Sub Total	3	0
	Interaction with superior	PC1. understand the work output requirements	1	0
2 68 1/N0002		PC2. comply with company policy and rule	1	1
3. G&J/N9902 Coordinate with		PC3. deliver quality work on time as required by reporting any anticipated reasons for delays	1	1
eam and others	Interactions with colleagues,	PC4. put team over individual goals	0	0
eam and others		PC5. resolve conflicts and multi-task	0	0
	customers and/or vendors	PC2. follow company policy and rules regarding use of hazardous materials	0	0



Qualifications Pack for CNC Machine Jewellery Maker



		CRITERIA FOR ASSESSMENT OF TRAINEES		
		Sub Total	3	2
		PC1. spot and report potential hazards on time	1	2
4. G&J/N9905	Communicating potential	PC2. follow company policy and rules regarding use of hazardous materials	1	1
Maintain occupational	accident points	PC3. deliver quality work on time as required by reporting any anticipated reasons for delays	0	0
health and safety	Using safety gear	PC4. use or wear safety gear as per the rules of the company	0	0
		Sub Total	2	3
		Total	20	80





