



Wax Tree Maker

QP Code: G&J/Q2601

Version: 2.0

NSQF Level: 3

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G&J/Q2601: Wax Tree Maker

Brief Job Description

A wax tree maker works with different types of waxes, wax soldering machine and consumables in order to assemble wax pieces in a tree like structure

Personal Attributes

The job requires the individual to have: attention to details; good eyesight; steady hands; quick response; ability to work in a process driven team and for long hours in sitting position. The individual must also have problem solving skills in order to avert machine failures, errors and hazards

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [G&J/N2601: Make the wax tree](#)
2. [G&J/N9901: Respect and maintain IPR](#)
3. [G&J/N9902: Interact with colleagues and seniors](#)
4. [G&J/N9905: Maintain occupational health and safety](#)

Qualification Pack (QP) Parameters

Sector	Gem & Jewellery
Sub-Sector	Cast and diamonds-set jewellery
Occupation	Wax Model Making
Country	India
NSQF Level	3
Credits	NA
Aligned to NCO/ISCO/ISIC Code	NCO-2004/Nil
Minimum Educational Qualification & Experience	8th Class with 2 Years of experience or 10th Standard with 6 months of relevant experience or I.T.I (After 10th)

Minimum Level of Education for Training in School	
Pre-Requisite License or Training	Computer operations
Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	NA
NSQC Approval Date	
Version	2.0

G&J/N2601: Make the wax tree

Description

This OS unit is about assembling wax replica of jewellery components by soldering wax pieces on central wax sprue, in order to use it for mass production of jewellery piece through casting process

Scope

This unit/task covers the following: Receive the wax pieces, consumables and instructions from supervisor

- collect wax pieces, including studded with diamond and gemstones
- count the number of pieces and match with the job sheet
- read the instructions for number and type of wax pieces to be assembled on a wax tree
- select the type of central sprue as per design specified by the product development department or job sheet Clean and check each wax piece
- inspect all wax pieces for signs of defects or blemishes and missing diamonds and gemstones to avoid transporting defects to the metal cast jewellery
- clean and smooth wax patterns in preparation for making wax tree Make the wax tree as per job sheet
- select the rubber base for the tree, preferably in a conical shape
- clean the rubber base and check for any residue and defects
- use QC okayed rubber base
- select central sprue with lower melting range than the wax pieces, so that central stem melts first in the burnout cycle and help avoid stress in the invested flask
- select sprue with optimised dimension (tapered diameter is preferred), which helps reduce weight of alloy used in the casting process
- fit rubber base to the central sprue
- arrange the wax pieces to be assembled, e.g., thin or lighter wax pieces at top or complex designs at top
- join the wax piece sprue to the central sprue by soldering at the recommended angle of, say, 45o - 60o
- measure the weight of the assembled tree and note in the job sheet Return prepared wax tree to supervisor
- self-check each wax tree for angle and spacing between the wax pieces
- ensure timely delivery of the required number of quality okayed trees Report problems related to:
 - missing diamonds and gemstones on the wax pieces
 - imperfect wax pieces
 - completely different wax pieces in terms of its shape, size and weight are assigned for the same wax tree
 - shortage of wax, consumables and tools
 - reasons for anticipated delays that may adversely affect delivery Interact with superior or master model maker to:
 - receive instructions and materials from reporting supervisor

Elements and Performance Criteria

Wax tree making

To be competent, the user/individual on the job must be able to:

- PC1.** select appropriate rubber base and central sprue
- PC2.** select appropriate length of the sprue for the number of wax pieces
- PC3.** assemble wax pieces according to instructions and standard operating procedure in terms of sequence, angle and spacing of the wax pieces

Productivity

To be competent, the user/individual on the job must be able to:

- PC4.** timely deliver wax pieces to next process
- PC5.** produce number of wax tree per day as per target given
- PC6.** ensure damage free output with minimal hazards

Quality of output

To be competent, the user/individual on the job must be able to:

- PC7.** inspect all wax pieces, rubber base, nozzle and central sprue for imperfect surface finishing
- PC8.** solder wax piece to central sprue without damaging wax pieces
- PC9.** produce wax tree is quality okayed

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** companys policies on: quality, incentives, delivery standards, safety and hazards, integrity and IPR, and personnel management
- KU2.** importance of the individuals role in the workflow
- KU3.** reporting structure
- KU4.** different types of wax and their properties, particularly, with respect to heat and pressure sensitivity
- KU5.** uses of different qualities of wax and its properties in terms of shrinkage
- KU6.** different types of central sprue and rubber base
- KU7.** potential work hazards, particularly, when using wax soldering machine and sharp tools

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** read notes, designs and instructions on job sheet
- GS2.** read company rules and compliance documents required to complete the work
- GS3.** count the number of wax pieces to be assembled on the same wax tree
- GS4.** assess accuracy of alignment and measure symmetry
- GS5.** share work load when multiple deliverables are required
- GS6.** deliver the wax piece to next work process on time
- GS7.** wax types and its properties
- GS8.** dimensions of central stem and rubber base
- GS9.** prescribed melting temperature of the different types of wax
- GS10.** to use the wax soldering machine

- GS11.** to work in a safe environment, i.e., without injuries
- GS12.** improve work processes or greater productivity
- GS13.** inspect all wax pieces, rubber base, nozzle and central stem for imperfect surface finishing
- GS14.** self-check each wax tree for angle and spacing between the wax pieces
- GS15.** anticipate process disruption and reasons for delay

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Wax tree making</i>	5	26	-	-
PC1. select appropriate rubber base and central sprue	-	8	-	-
PC2. select appropriate length of the sprue for the number of wax pieces	2	8	-	-
PC3. assemble wax pieces according to instructions and standard operating procedure in terms of sequence, angle and spacing of the wax pieces	3	10	-	-
<i>Productivity</i>	-	15	-	-
PC4. timely deliver wax pieces to next process	-	5	-	-
PC5. produce number of wax tree per day as per target given	-	5	-	-
PC6. ensure damage free output with minimal hazards	-	5	-	-
<i>Quality of output</i>	5	24	-	-
PC7. inspect all wax pieces, rubber base, nozzle and central sprue for imperfect surface finishing	2	8	-	-
PC8. solder wax piece to central sprue without damaging wax pieces	3	10	-	-
PC9. produce wax tree is quality okayed	-	6	-	-
NOS Total	10	65	-	-

National Occupational Standards (NOS) Parameters

NOS Code	G&J/N2601
NOS Name	Make the wax tree
Sector	Gem & Jewellery
Sub-Sector	Cast and diamonds-set jewellery
Occupation	Wax model making
NSQF Level	3
Credits	TBD
Version	1.0
Last Reviewed Date	15/06/2015
Next Review Date	31/03/2022
NSQC Clearance Date	05/08/2015

G&J/N9901: Respect and maintain IPR

Description

This OS unit is about protecting companys IPR and avoiding infringement to IPR of other companies

Elements and Performance Criteria

Respecting and maintaining IPR

To be competent, the user/individual on the job must be able to:

- PC1.** be able to spot plagiarism and report
- PC2.** be aware of patents and ipr
- PC3.** not be involved in ipr violations

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** companys policies on ipr and plagiarism
- KU2.** reporting structure
- KU3.** companys unique product range
- KU4.** patents and ipr laws
- KU5.** how ipr protection is important for competitiveness of a company

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** effectively communicate any observed ipr violations or order leaks
- GS2.** report potential sources of violations
- GS3.** learn from past mistakes and report ipr violations on time
- GS4.** learn from past mistakes and report ipr violations on time

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Respecting and maintaining IPR</i>	4	5	-	-
PC1. be able to spot plagiarism and report	2	1	-	-
PC2. be aware of patents and ipr	1	3	-	-
PC3. not be involved in ipr violations	1	1	-	-
NOS Total	4	5	-	-

National Occupational Standards (NOS) Parameters

NOS Code	G&J/N9901
NOS Name	Respect and maintain IPR
Sector	Gem & Jewellery
Sub-Sector	Jewellery Retail, Cast and diamonds-set jewellery
Occupation	Designing and Product Development
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	15/06/2015
Next Review Date	24/02/2025
NSQ Clearance Date	24/02/2022

G&J/N9902: Interact with colleagues and seniors

Description

This OS unit is about communicating with colleagues and seniors in order to achieve smooth and hazard-free work flow

Elements and Performance Criteria

Interaction with supervisor

To be competent, the user/individual on the job must be able to:

- PC1.** understand the work output requirements
- PC2.** comply with company policy and rule
- PC3.** deliver quality work on time as required by reporting any anticipated reasons for delays

Interactions with colleagues and other departments

To be competent, the user/individual on the job must be able to:

- PC4.** put team over individual goals
- PC5.** be able to resolve conflicts
- PC6.** learn how to multi-task relevant activities

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** companys policies on: preferred language of communication, reporting and escalation policy, quality delivery standards, and personnel management
- KU2.** reporting structure
- KU3.** communicate effectively
- KU4.** build team coordination

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** read and write preferred language of communication as prescribed by the company
- GS2.** read job sheets and interpret technical details mentioned in the job sheet
- GS3.** how to spot and communicate potential areas of disruptions to work process and report the same
- GS4.** when to report to supervisor and when to deal with a colleague individually, depending on the type of concern
- GS5.** improve work processes by interacting with others and adopting best practices
- GS6.** spot process disruptions and delays and report and communicate with solutions

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Interaction with supervisor</i>	1	3	-	-
PC1. understand the work output requirements	1	1	-	-
PC2. comply with company policy and rule	-	1	-	-
PC3. deliver quality work on time as required by reporting any anticipated reasons for delays	-	1	-	-
<i>Interactions with colleagues and other departments</i>	2	2	-	-
PC4. put team over individual goals	1	-	-	-
PC5. be able to resolve conflicts	-	1	-	-
PC6. learn how to multi-task relevant activities	1	1	-	-
NOS Total	3	5	-	-

National Occupational Standards (NOS) Parameters

NOS Code	G&J/N9902
NOS Name	Interact with colleagues and seniors
Sector	Gem & Jewellery
Sub-Sector	Jewellery Retail, Cast and diamonds-set jewellery
Occupation	Designing and Product Development
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	15/07/2015
Next Review Date	24/02/2025
NSQ Clearance Date	24/02/2022

G&J/N9905: Maintain occupational health and safety

Description

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

Elements and Performance Criteria

Communicating potential accident points

To be competent, the user/individual on the job must be able to:

- PC1.** spot and report potential hazards on time
- PC2.** follow company policy and rules regarding use of hazardous materials
- PC3.** attend and actively participate in the health and safety campaigns organised by the company

Using safety gear

To be competent, the user/individual on the job must be able to:

- PC4.** use or wear safety gear as per the rules of the company

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** companys policies on handling: harmful chemicals and sharp tools, safety and hazards of machines, fire safety and, disposal of harmful chemicals and materials
- KU2.** work flow involved in companys jewellery manufacturing process
- KU3.** importance of the individuals role in the workflow
- KU4.** reporting structure
- KU5.** how different chemicals react and what could be the danger from them
- KU6.** how to use machines and tools without causing bodily harm
- KU7.** fire safety education
- KU8.** first aid execution
- KU9.** disposal of hazardous chemicals, tools and materials by following prescribed environmental norms or as per company policy
- KU10.** companys policies on: safety and hazardsand personnel management
- KU11.** reporting structure
- KU12.** how to use machines and tools without suffering bodily harm

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** prepare notes, task lists and schedule with co-workers
- GS2.** prepare progress reports
- GS3.** read notes and put notes on design

- GS4.** read company rules and compliance documents required to complete the work
- GS5.** discuss task lists, schedules and work-loads with co-workers
- GS6.** question co-workers appropriately in order to understand the nature of problem and to make a diagnosis
- GS7.** keep seniors informed about the progress of work
- GS8.** make decisions pertaining to the concerned area of work to implement them on personal or organizational level
- GS9.** plan and organize the work to meet health, safety and security requirements
- GS10.** use customer centric approach that provides a positive customer experience before and after the sale in order to drive repeat business, customer loyalty and profits
- GS11.** think through the problem, evaluate the possible solution (s) and suggest an optimum/ best possible solution (s)
- GS12.** identify immediate or temporary solutions to resolve delays
- GS13.** analyze activities by breaking them down into single and manageable components
- GS14.** anticipate process disruption and reasons for delay
- GS15.** effectively communicate the danger
- GS16.** keep all the tools in an organised manner so as to avoid accidents
- GS17.** keep the work environment safe and clean
- GS18.** report potential sources of danger
- GS19.** follow prescribed procedure in the event of an accident
- GS20.** wear appropriate safety gear to avoid an accident
- GS21.** learn from past mistakes regarding use of hazardous machines or chemicals
- GS22.** spot danger
- GS23.** report potential sources of danger
- GS24.** follow prescribed procedure in the event of an accident
- GS25.** wear appropriate safety gear to avoid an accident

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Communicating potential accident points</i>	2	4	-	-
PC1. spot and report potential hazards on time	1	1	-	-
PC2. follow company policy and rules regarding use of hazardous materials	-	2	-	-
PC3. attend and actively participate in the health and safety campaigns organised by the company	1	1	-	-
<i>Using safety gear</i>	1	1	-	-
PC4. use or wear safety gear as per the rules of the company	1	1	-	-
NOS Total	3	5	-	-

National Occupational Standards (NOS) Parameters

NOS Code	G&J/N9905
NOS Name	Maintain occupational health and safety
Sector	Gem & Jewellery
Sub-Sector	Imitation Jewellery, Cast and diamonds-set jewellery
Occupation	Designing and Product Development
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	27/05/2021
Next Review Date	27/05/2024
NSQC Clearance Date	27/05/2021

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ 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 Element/ PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Minimum Aggregate Passing % at QP Level : 50

(**Please note:** Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
G&J/N2601.Make the wax tree	10	65	-	-	75	70
G&J/N9901.Respect and maintain IPR	4	5	-	-	9	10
G&J/N9902.Interact with colleagues and seniors	3	5	-	-	8	10
G&J/N9905.Maintain occupational health and safety	3	5	-	-	8	10
Total	20	80	-	-	100	100

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training

Glossary

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.
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 (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	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 (KU)	Knowledge and Understanding (KU) 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.

<p>Organisational Context</p>	<p>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.</p>
<p>Technical Knowledge</p>	<p>Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.</p>
<p>Core Skills/ Generic Skills (GS)</p>	<p>Core skills or Generic Skills (GS) 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.</p>
<p>Electives</p>	<p>Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.</p>
<p>Options</p>	<p>Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.</p>