

Qualification Pack

Diamond Polisher

QP Code: G&J/Q4706

Version: 1.0

NSQF Level: 3

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G&J/Q4706: Diamond Polisher

Brief Job Description

A Diamond Processor uses advanced technologies and precision tools to shape, cut, and polish rough diamonds into high-quality gemstones. They use auto-bruters, polishing scaifes, laser cutting machines, and software for planning and symmetry analysis. The processor manually or automatically executes tasks like bruting, faceting, polishing, and symmetry correction, ensuring precision and accuracy in the final product.

Personal Attributes

The job requires to have good communication and interpersonal skills with an outcome-focused and customer-centric approach and an eye for detail.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [G&J/N4702: Make and polish the Top facets of the diamond](#)
2. [G&J/N9902: Maintain health and safety at workplace](#)
3. [DGT/VSQ/N0101: Employability Skills \(30 Hours\)](#)
4. [G&J/N9952: Implement Circular Economy and Sustainable Practices in Gem and Jewellery Industry](#)
5. [G&J/N4709: Make and polish the Bottom facets of the diamond](#)
6. [G&J/N4710: Round and polish the Griddle of the diamond](#)
7. [G&J/N4206: Generate the Cut quality report](#)

Qualification Pack (QP) Parameters

Sector	Gem & Jewellery
Sub-Sector	Diamond Processing
Occupation	Faceting and Polishing
Country	India
NSQF Level	3

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Credits	12
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7313.1504
Minimum Educational Qualification & Experience	10th Class with NA of experience OR 9th grade pass with 1.5 years of experience OR 8th Class with 3 Years of experience OR Previous relevant Qualification of NSQF Level 2.5 with 1.5 years of experience OR Previous relevant Qualification of NSQF Level 2 with 3 Years of experience
Minimum Level of Education for Training in School	Not Applicable
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	07/10/2028
NSQC Approval Date	07/10/2025
Version	1.0
Reference code on NQR	QG-03-GJ-045162025-V1-GJSCI
NQR Version	1.0

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G&J/N4702: Make and polish the Top facets of the diamond

Description

The OS unit focuses on high-precision diamond polishing, blending traditional skills with modern tools like optical imaging, laser alignment, and optimization software, while ensuring safety, accuracy, sustainability, and traceability.

Scope

The scope covers the following :

- This unit/task covers the following:
- Prepare Dop assembly and maintain structural integrity
- Polish the top facets using precision equipment
- Ensure facet accuracy and finish quality
- Enhance diamond polishing with safety, smart tools, and sustainable practices

Elements and Performance Criteria

Prepare dop assembly and maintain structural integrity

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

- PC1.** calibrate the dop stick and holder using micrometer or dial gauge tools to ensure zero tilt and consistent table plane symmetry.
- PC2.** apply pre-reinforcement support like polymer coating or shellac layer for fragile or irregularly shaped diamonds to reduce vibration and ensure hold.
- PC3.** inspect fixed diamond under a gem microscope for centering, secure hold, and absence of micro-fractures caused during dop setting.
- PC4.** allow dop wax or adhesive to cure naturally or via controlled cooling systems such as air fans or Peltier cooling plates to avoid stress within the crystal structure.

Polish the top facets using precision equipment

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

- PC5.** mount the dop into the top faceting arm of a budget-friendly polishing machine such as a hand-operated faceting machine, or a locally fabricated faceting machine.
- PC6.** set accurate facet angles for the table and crown facets using digital angle protractors, inclinometers, or goniometers.
- PC7.** select appropriate polishing scaife (diamond powder-charged metal wheel) depending on the type of facet—use finer mesh for table and final crown facets.
- PC8.** operate polishing machines at controlled speed while maintaining light and consistent pressure to avoid damage.
- PC9.** monitor facet development in real time using lens-mounted cameras or digital viewports to check for symmetry, polish grade, and meets alignment.
- PC10.** adjust polishing duration and pressure using tactile feedback and polishing indicators to prevent "burn marks" or overcutting.

Ensure facet accuracy and finish quality

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

- PC11.** use calibrated index gears or digital index dials to ensure even spacing of crown facets around the table.
- PC12.** verify flatness and polish grade of table and crown facets using reflection tests, loupes, or polish grade meters like Sarine DiaScan.
- PC13.** rotate the stone during polishing to balance crown symmetry using faceting software or manual guides that visualize facet interrelation.

Enhance diamond polishing with safety, smart tools, and sustainable practices

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

- PC14.** implement protective measures using emergency-release dop holders or pressure limiters to safeguard diamonds from sudden force, slippage, or overloading.
- PC15.** wear safety gear like protective eyewear and dust masks to guard against fine diamond powder and flying debris.
- PC16.** maintain workstation stability by using anti-vibration pads, calibrated spindles, and ensuring regular machine upkeep for a clean, vibration-free environment.
- PC17.** apply controlled pressure near the girdle line and facet intersections to avoid edge chipping or cracking.
- PC18.** optimize polishing workflow by planning crown facet sequences based on table facet size and culet orientation to reduce time and material waste.
- PC19.** use AI-driven visualization tools to simulate and adjust facet geometry in real time, or apply manual CAD-based gem design software (e.g., Blender, FreeCAD) for facet planning and adjustments.
- PC20.** record adjustments and polishing sequences through diamond manufacturing software for better traceability, certification, and future replication.
- PC21.** adopt eco-friendly materials like eco-safe dop wax or recyclable adhesives to reduce environmental impact and polishing room waste.
- PC22.** ensure ethical sourcing by recording the diamond's origin, batch number, and polishing stages in simple digital logs or tracking sheets. Select 80 more words to run Humanizer.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** natural structure of a rough diamond, including grain direction, cleavage lines, and inclusions, to determine the best orientation for polishing the top facets.
- KU2.** types of dop materials such as traditional wax, shellac, and modern adhesives, and how their thermal or chemical properties affect the fixing process.
- KU3.** tools and equipment like 10x or 20x gemological loupes, microscopes, digital imagers, dop sticks, and laser alignment systems used in fixing and centering the diamond.
- KU4.** curing and cooling techniques for dop adhesives to prevent internal stress or micro-fractures in the diamond during the setting process.
- KU5.** steps to operate faceting machines and accessories like index gears, angle protractors, and polishing scaifes for creating precise crown and table facets.
- KU6.** role of facet angles and indexing systems in achieving symmetrical and optically ideal crown facets, including the use of common index wheels (e.g., 96, 120 index).

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- KU7.** polishing wheel specifications, including diamond grit sizes and RPM settings, and how they influence the polish grade and surface finish of top facets.
- KU8.** importance of real-time monitoring tools, such as magnified viewports or camera-assisted displays, for evaluating polishing accuracy and facet development.
- KU9.** safety measures and damage prevention techniques, including vibration control, emergency-release dops, and protective equipment, to avoid chipping or injury.
- KU10.** selection of appropriate polishing scaife types based on facet type, including the use of finer mesh scaife (approximately 14,000 60,000 grit) for polishing table and final crown facets.
- KU11.** optimal operating speed range for polishing machines (typically 1800 to 3000 RPM) and the importance of applying light, consistent pressure to prevent damage to the diamond.
- KU12.** sustainable practices such as using eco-friendly dop materials, documenting diamond traceability, and integrating digital systems for ethical sourcing and workflow optimization.

Generic Skills (GS)

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

- GS1.** read and write to follow work instructions and maintain records.
- GS2.** communicate effectively with team members and supervisors.
- GS3.** manage time efficiently to meet production deadlines.
- GS4.** identify and solve problems related to gemstone defects and processing.

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare dop assembly and maintain structural integrity</i>	5	14	-	-
PC1. calibrate the dop stick and holder using micrometer or dial gauge tools to ensure zero tilt and consistent table plane symmetry.	1	3	-	-
PC2. apply pre-reinforcement support like polymer coating or shellac layer for fragile or irregularly shaped diamonds to reduce vibration and ensure hold.	1	3	-	-
PC3. inspect fixed diamond under a gem microscope for centering, secure hold, and absence of micro-fractures caused during dop setting.	1	3	-	-
PC4. allow dop wax or adhesive to cure naturally or via controlled cooling systems such as air fans or Peltier cooling plates to avoid stress within the crystal structure.	2	5	-	-
<i>Polish the top facets using precision equipment</i>	10	14	-	-
PC5. mount the dop into the top faceting arm of a budget-friendly polishing machine such as a hand-operated faceting machine, or a locally fabricated faceting machine.	2	2	-	-
PC6. set accurate facet angles for the table and crown facets using digital angle protractors, inclinometers, or goniometers.	2	2	-	-
PC7. select appropriate polishing scaife (diamond powder-charged metal wheel) depending on the type of facet—use finer mesh for table and final crown facets.	2	2	-	-
PC8. operate polishing machines at controlled speed while maintaining light and consistent pressure to avoid damage.	2	2	-	-
PC9. monitor facet development in real time using lens-mounted cameras or digital viewports to check for symmetry, polish grade, and meets alignment.	1	3	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. adjust polishing duration and pressure using tactile feedback and polishing indicators to prevent "burn marks" or overcutting.	1	3	-	-
<i>Ensure facet accuracy and finish quality</i>	5	10	-	-
PC11. use calibrated index gears or digital index dials to ensure even spacing of crown facets around the table.	2	4	-	-
PC12. verify flatness and polish grade of table and crown facets using reflection tests, loupes, or polish grade meters like Sarine DiaScan.	2	4	-	-
PC13. rotate the stone during polishing to balance crown symmetry using faceting software or manual guides that visualize facet interrelation.	1	2	-	-
<i>Enhance diamond polishing with safety, smart tools, and sustainable practices</i>	10	32	-	-
PC14. implement protective measures using emergency-release dop holders or pressure limiters to safeguard diamonds from sudden force, slippage, or overloading.	2	4	-	-
PC15. wear safety gear like protective eyewear and dust masks to guard against fine diamond powder and flying debris.	1	4	-	-
PC16. maintain workstation stability by using anti-vibration pads, calibrated spindles, and ensuring regular machine upkeep for a clean, vibration-free environment.	1	4	-	-
PC17. apply controlled pressure near the girdle line and facet intersections to avoid edge chipping or cracking.	1	4	-	-
PC18. optimize polishing workflow by planning crown facet sequences based on table facet size and culet orientation to reduce time and material waste.	1	4	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC19. use AI-driven visualization tools to simulate and adjust facet geometry in real time, or apply manual CAD-based gem design software (e.g., Blender, FreeCAD) for facet planning and adjustments.	1	4	-	-
PC20. record adjustments and polishing sequences through diamond manufacturing software for better traceability, certification, and future replication.	1	4	-	-
PC21. adopt eco-friendly materials like eco-safe dop wax or recyclable adhesives to reduce environmental impact and polishing room waste.	1	2	-	-
PC22. ensure ethical sourcing by recording the diamond's origin, batch number, and polishing stages in simple digital logs or tracking sheets. Select 80 more words to run Humanizer.	1	2	-	-
NOS Total	30	70	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	G&J/N4702
NOS Name	Make and polish the Top facets of the diamond
Sector	Gem & Jewellery
Sub-Sector	Diamond Processing
Occupation	Faceting and Polishing
NSQF Level	3
Credits	0
Version	2.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

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G&J/N9902: Maintain health and safety at workplace

Description

This OS unit is about being aware of, communicating and taking steps towards minimizing potential hazards and maintaining health and safety at workplace.

Scope

The scope covers the following :

- Health, hygiene and safety in work area
- Fire safety
- Emergencies, rescue and first aid procedures
- Waste management

Elements and Performance Criteria

Health, hygiene and safety in work area

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

- PC1.** follow regular cleaning and disinfection practices at work place using appropriate techniques and materials
- PC2.** follow hand hygiene practices at work place using appropriate techniques and materials
- PC3.** follow alternative ways of conducting meeting and organizing event to ensure safety
- PC4.** follow contactless attendance system
- PC5.** report regarding the contagious illness of self or people in close contact
- PC6.** use appropriate protective clothing/ equipment for specific tasks
- PC7.** identify hazardous activities and the possible causes of risks or accidents in the workplace
- PC8.** follow safe working practices while dealing with hazards to ensure safety of self and others
- PC9.** maintain appropriate working postures to minimize occupational health related issues

Fire safety

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

- PC10.** use appropriate type of fire extinguisher
- PC11.** apply appropriate rescue techniques during fire hazard
- PC12.** ensure good housekeeping in order to prevent fire hazards

Emergencies, rescue and first aid procedures

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

- PC13.** provide appropriate first aid procedure to victims wherever required eg.in case of bleeding, burns, choking, electric shock etc.
- PC14.** respond promptly and appropriately to an accident or medical emergency.
- PC15.** follow emergency procedures such as raising alarm, safe evacuation etc.

Waste management

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

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- PC16.** identify recyclable, non-recyclable and hazardous waste
- PC17.** collect the segregated waste - at designated space
- PC18.** dispose non-recyclable waste appropriately and deposit recyclable and reusable material at identified location

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** company's policies on safety, hazards and personnel management
- KU2.** signages that refer to health and safety in work place
- KU3.** the reporting structure
- KU4.** health and safety hazards commonly present in the work place and related precautions
- KU5.** preventative and remedial actions to be taken in case of exposure to toxic material
- KU6.** methods of accident prevention
- KU7.** how different chemicals react and the related hazards
- KU8.** how to use machines and tools without causing any accident
- KU9.** importance of using protective clothing/ equipment while working
- KU10.** precautionary activities to prevent the fire accident
- KU11.** various causes of fire
- KU12.** techniques of using different fire extinguishers
- KU13.** different materials used for extinguishing fire
- KU14.** rescue techniques applied during a fire hazard
- KU15.** various types of safety signs and their meaning
- KU16.** appropriate basic first aid treatment relevant to different condition e.g. bleeding, minor burns, eye injuries etc.,
- KU17.** casualty lifting in case of an accident
- KU18.** usage of different colors of dustbins.
- KU19.** categorization of waste into dry, wet, recyclable, non-recyclable and items of single-use plastics.
- KU20.** waste management and methods of waste disposal.

Generic Skills (GS)

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

- GS1.** read and comprehend labels, charts, signages
- GS2.** read and comprehend manuals of operations
- GS3.** communicate effectively, the risk of not following safety measures
- GS4.** respond to emergencies/accidents, by taking an appropriate and timely decision
- GS5.** organize work schedule, work area, tools, equipment and material to minimize health and safety risk

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- GS6.** ensure appropriate action in case of any emergencies, accidents or fire at the work location
- GS7.** analyze untoward incidents from the past and follow correct procedures in handling machines, tools or hazardous chemicals
- GS8.** critically analyze the processes carried out by self and colleagues in the department to spot potential hazards and safety issues
- GS9.** record data on waste disposal at workplace.
- GS10.** complete statutory documents relevant to safety and hygiene.

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Health, hygiene and safety in work area</i>	9	16	-	-
PC1. follow regular cleaning and disinfection practices at work place using appropriate techniques and materials	1	2	-	-
PC2. follow hand hygiene practices at work place using appropriate techniques and materials	1	2	-	-
PC3. follow alternative ways of conducting meeting and organizing event to ensure safety	1	2	-	-
PC4. follow contactless attendance system	1	1	-	-
PC5. report regarding the contagious illness of self or people in close contact	1	2	-	-
PC6. use appropriate protective clothing/ equipment for specific tasks	1	2	-	-
PC7. identify hazardous activities and the possible causes of risks or accidents in the workplace	1	2	-	-
PC8. follow safe working practices while dealing with hazards to ensure safety of self and others	1	1	-	-
PC9. maintain appropriate working postures to minimize occupational health related issues	1	2	-	-
<i>Fire safety</i>	3	6	-	-
PC10. use appropriate type of fire extinguisher	1	3	-	-
PC11. apply appropriate rescue techniques during fire hazard	1	2	-	-
PC12. ensure good housekeeping in order to prevent fire hazards	1	1	-	-
<i>Emergencies, rescue and first aid procedures</i>	3	4	-	-
PC13. provide appropriate first aid procedure to victims wherever required eg.in case of bleeding, burns, choking, electric shock etc.	1	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. respond promptly and appropriately to an accident or medical emergency.	1	2	-	-
PC15. follow emergency procedures such as raising alarm, safe evacuation etc.	1	1	-	-
<i>Waste management</i>	3	6	-	-
PC16. identify recyclable, non-recyclable and hazardous waste	1	2	-	-
PC17. collect the segregated waste - at designated space	1	2	-	-
PC18. dispose non-recyclable waste appropriately and deposit recyclable and reusable material at identified location	1	2	-	-
NOS Total	18	32	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	G&J/N9902
NOS Name	Maintain health and safety at workplace
Sector	Gem & Jewellery
Sub-Sector	Handmade Gold and Gems-set Jewellery, Gemstone Processing, Silver Smithing, Jewellery Retail, Cast and diamonds-set jewellery, Imitation Jewellery, Diamond Processing
Occupation	Generic
NSQF Level	3
Credits	TBD
Version	3.0
Last Reviewed Date	31/08/2023
Next Review Date	31/08/2026
NSQC Clearance Date	31/08/2023

Qualification Pack

DGT/VSQ/N0101: Employability Skills (30 Hours)

Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

Scope

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

Elements and Performance Criteria

Introduction to Employability Skills

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

PC1. understand the significance of employability skills in meeting the job requirements

Constitutional values – Citizenship

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

PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices

Becoming a Professional in the 21st Century

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

PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.

Basic English Skills

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

PC4. speak with others using some basic English phrases or sentences

Communication Skills

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

PC5. follow good manners while communicating with others

PC6. work with others in a team

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Diversity & Inclusion

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

PC7. communicate and behave appropriately with all genders and PwD

PC8. report any issues related to sexual harassment

Financial and Legal Literacy

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

PC9. use various financial products and services safely and securely

PC10. calculate income, expenses, savings etc.

PC11. approach the concerned authorities for any exploitation as per legal rights and laws

Essential Digital Skills

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

PC12. operate digital devices and use its features and applications securely and safely

PC13. use internet and social media platforms securely and safely

Entrepreneurship

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

PC14. identify and assess opportunities for potential business

PC15. identify sources for arranging money and associated financial and legal challenges

Customer Service

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

PC16. identify different types of customers

PC17. identify customer needs and address them appropriately

PC18. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC19. create a basic biodata

PC20. search for suitable jobs and apply

PC21. identify and register apprenticeship opportunities as per requirement

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

KU4. Twenty first (21st) century skills and their importance

KU5. how to use basic spoken English language

KU6. Do and dont of effective communication

KU7. inclusivity and its importance

KU8. different types of disabilities and appropriate communication and behaviour towards PwD

KU9. different types of financial products and services

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- KU10.** how to compute income and expenses
- KU11.** importance of maintaining safety and security in financial transactions
- KU12.** different legal rights and laws
- KU13.** how to operate digital devices and applications safely and securely
- KU14.** ways to identify business opportunities
- KU15.** types of customers and their needs
- KU16.** how to apply for a job and prepare for an interview
- KU17.** apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

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

- GS1.** communicate effectively using appropriate language
- GS2.** behave politely and appropriately with all
- GS3.** perform basic calculations
- GS4.** solve problems effectively
- GS5.** be careful and attentive at work
- GS6.** use time effectively
- GS7.** maintain hygiene and sanitisation to avoid infection

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	1	1	-	-
PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
<i>Constitutional values – Citizenship</i>	1	1	-	-
PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	1	3	-	-
PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
<i>Basic English Skills</i>	2	3	-	-
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
<i>Communication Skills</i>	1	1	-	-
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
<i>Diversity & Inclusion</i>	1	1	-	-
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
<i>Financial and Legal Literacy</i>	3	4	-	-
PC9. use various financial products and services safely and securely	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. calculate income, expenses, savings etc.	-	-	-	-
PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
<i>Essential Digital Skills</i>	4	6	-	-
PC12. operate digital devices and use its features and applications securely and safely	-	-	-	-
PC13. use internet and social media platforms securely and safely	-	-	-	-
<i>Entrepreneurship</i>	3	5	-	-
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
<i>Customer Service</i>	2	2	-	-
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	1	3	-	-
PC19. create a basic biodata	-	-	-	-
PC20. search for suitable jobs and apply	-	-	-	-
PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-
NOS Total	20	30	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0101
NOS Name	Employability Skills (30 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	2
Credits	1
Version	1.0
Last Reviewed Date	12/03/2026
Next Review Date	12/09/2026
NSQC Clearance Date	12/03/2026

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G&J/N9952: Implement Circular Economy and Sustainable Practices in Gem and Jewellery Industry

Description

This NOS is about implementing eco-friendly practices in jewellery production, including recycling, upcycling, and energy-efficient methods to optimize resource usage, maintain quality, and minimize environmental impact for sustainable and long-term economic benefits.

Scope

The scope covers the following :

- Integrate sustainable practices in jewellery production
- Perform recycling and upcycling of jewellery mate
- Implement material conservation practices in daily operations
- Implement energy and material conservation practices in daily operations

Elements and Performance Criteria

Integrate sustainable practices in jewellery production

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

- PC1.** identify and select recyclable and reusable materials for jewellery production
- PC2.** incorporate modular designs that allow easy disassembly and reassembly
- PC3.** avoid using mixed materials that hinder recyclability
- PC4.** follow eco-friendly manufacturing guidelines while designing new jewellery
- PC5.** work closely with suppliers to source conflict-free and ethical materials
- PC6.** minimize wastage in the design process by optimizing raw material usage
- PC7.** measure the quantity of materials for designs before production to avoid wastage
- PC8.** recover lost gold and reintegrate into production
- PC9.** establish systems to reuse process-rejected gold and customer-returned jewellery
- PC10.** melt and reuse wax patterns in the lost wax casting process
- PC11.** treat and neutralize process chemicals before disposal
- PC12.** reuse waste water from the manufacturing process for non-production activities
- PC13.** adopt industry best practices for hazardous waste disposal
- PC14.** implement waste segregation practices for better disposal and recycling
- PC15.** conduct regular audits to ensure efficient resource utilization

Perform recycling and upcycling of jewellery materials

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

- PC16.** establish take-back programs for old and unwanted jewellery
- PC17.** implement closed-loop recycling systems for metals and gemstones
- PC18.** ensure proper sorting of recyclable and non-recyclable materials
- PC19.** partner with certified recyclers for ethical material disposal

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PC20. reduce dependency on new materials by increasing the use of recycled materials

PC21. document and track all recycled and upcycled materials as per organisational procedure

Implement material conservation practices in daily operations

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

PC22. implement water conservation measures by preventing leaks, optimizing water usage, and reusing water for secondary purposes

PC23. promote paper conservation in office work by reducing unnecessary printing, using digital alternatives, and reusing single-sided printed paper

PC24. use fuel-efficient methods in jewellery manufacturing by maintaining machines, and minimize energy consumption during metal casting and finishing processes

PC25. ensure proper handling and storage of chemicals used in jewellery making, such as acids and polishing agents, to prevent spills and excessive usage

Implement energy and material conservation practices in daily operations

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

PC26. ensure optimal utilization of natural sunlight by keeping window curtains open

PC27. identify and adopt energy-efficient equipment for jewellery production

PC28. maintaining adequate indoor illumination levels of 200 to 250 lux for office work

PC29. use LED lighting and other energy-saving fixtures in manufacturing units

PC30. use solar energy wherever feasible to reduce dependency on non-renewable sources

PC31. implement automatic timers and sensors to reduce unnecessary energy consumption

PC32. optimize ventilation systems to reduce power usage

PC33. use five-star rated electrical appliances to conserve electricity and reduce carbon emissions

PC34. maintain appropriate thermostat settings for air conditioners to reduce energy consumption

PC35. ensure that the AC room is air-sealed and free from unnecessary heat-absorbing materials

PC36. assist in conducting energy audits to identify and address inefficiencies

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. properties, types, and classifications of gemstones, including their hardness, color variations, and inclusions.

KU2. principles and methods of digital tracking, RFID-based inventory management, and their role in gemstone verification.

KU3. The application of AI-assisted design tools for analysing pre-shaping requirements to optimize yield.

KU4. operational setup and maintenance of automated grinding mills and scaife with vibration sensors for precision cutting.

KU5. functionalities and benefits of CNC-based or robotic pre-shaping tools for minimizing material loss and ensuring consistency.

KU6. role of real-time AI monitoring in calibrating gemstone size, dimensions, and weight to maintain precision.

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- KU7.** selection criteria for laps and abrasive powders based on gemstone type, using machine-learning recommendations.
- KU8.** factors influencing cutting parameters to maximize QC-approved gemstones while reducing defects.
- KU9.** importance of eco-friendly cooling techniques to prevent overheating and preserve gemstone colour.
- KU10.** methodologies for tracking and measuring daily gemstone cutting output in carats and number of stones using automated systems.
- KU11.** impact of maintaining AI-predicted tolerance limits on reducing gemstone loss and enhancing efficiency.
- KU12.** significance of predictive maintenance and anomaly detection in proactively identifying and resolving production bottlenecks.
- KU13.** health and safety hazards associated with gemstone cutting, including dust control and ergonomic workstation design.
- KU14.** use of AR-based training modules for continuous learning and adapting to new gemstone cutting technologies
- KU15.** principles of precision cutting and polishing to achieve optimal faceting and brilliance in gemstones.
- KU16.** latest advancements in AI, robotics, and machine learning for process automation in the gemstone industry.
- KU17.** regulatory standards, sustainability guidelines, and environmental best practices in gemstone cutting and processing.
- KU18.** ethical considerations in gemstone sourcing, handling, and processing to align with industry compliance and responsible sourcing practices

Generic Skills (GS)

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

- GS1.** read and write to follow work instructions and maintain records.
- GS2.** communicate effectively with team members and supervisors.
- GS3.** stay updated on gemstone processing techniques and industry trends.
- GS4.** manage time efficiently to meet production deadlines.
- GS5.** manage time efficiently to meet production deadlines.
- GS6.** apply critical thinking to improve processing methods and quality.

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Integrate sustainable practices in jewellery production</i>	10	20	-	3
PC1. identify and select recyclable and reusable materials for jewellery production	1	1	-	-
PC2. incorporate modular designs that allow easy disassembly and reassembly	1	2	-	-
PC3. avoid using mixed materials that hinder recyclability	1	1	-	-
PC4. follow eco-friendly manufacturing guidelines while designing new jewellery	1	2	-	-
PC5. work closely with suppliers to source conflict-free and ethical materials	-	1	-	-
PC6. minimize wastage in the design process by optimizing raw material usage	-	1	-	1
PC7. measure the quantity of materials for designs before production to avoid wastage	1	1	-	-
PC8. recover lost gold and reintegrate into production	1	2	-	1
PC9. establish systems to reuse process-rejected gold and customer-returned jewellery	-	1	-	1
PC10. melt and reuse wax patterns in the lost wax casting process	-	1	-	-
PC11. treat and neutralize process chemicals before disposal	1	2	-	-
PC12. reuse waste water from the manufacturing process for non-production activities	1	1	-	1
PC13. adopt industry best practices for hazardous waste disposal	1	2	-	-
PC14. implement waste segregation practices for better disposal and recycling	-	1	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC15. conduct regular audits to ensure efficient resource utilization	1	1	-	-
<i>Perform recycling and upcycling of jewellery materials</i>	10	10	-	3
PC16. establish take-back programs for old and unwanted jewellery	1	3	-	1
PC17. implement closed-loop recycling systems for metals and gemstones	2	3	-	-
PC18. ensure proper sorting of recyclable and non-recyclable materials	1	1	-	-
PC19. partner with certified recyclers for ethical material disposal	3	1	-	1
PC20. reduce dependency on new materials by increasing the use of recycled materials	1	1	-	-
PC21. document and track all recycled and upcycled materials as per organisational procedure	2	1	-	1
<i>Implement material conservation practices in daily operations</i>	10	10	-	1
PC22. implement water conservation measures by preventing leaks, optimizing water usage, and reusing water for secondary purposes	2	2	-	1
PC23. promote paper conservation in office work by reducing unnecessary printing, using digital alternatives, and reusing single-sided printed paper	3	3	-	-
PC24. use fuel-efficient methods in jewellery manufacturing by maintaining machines, and minimize energy consumption during metal casting and finishing processes	3	3	-	-
PC25. ensure proper handling and storage of chemicals used in jewellery making, such as acids and polishing agents, to prevent spills and excessive usage	2	2	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Implement energy and material conservation practices in daily operations</i>	10	10	-	2
PC26. ensure optimal utilization of natural sunlight by keeping window curtains open	1	2	-	-
PC27. identify and adopt energy-efficient equipment for jewellery production	1	1	-	1
PC28. maintaining adequate indoor illumination levels of 200 to 250 lux for office work	1	2	-	-
PC29. use LED lighting and other energy-saving fixtures in manufacturing units	1	1	-	-
PC30. use solar energy wherever feasible to reduce dependency on non-renewable sources	1	1	-	-
PC31. implement automatic timers and sensors to reduce unnecessary energy consumption	1	-	-	-
PC32. optimize ventilation systems to reduce power usage	1	-	-	-
PC33. use five-star rated electrical appliances to conserve electricity and reduce carbon emissions	1	1	-	-
PC34. maintain appropriate thermostat settings for air conditioners to reduce energy consumption	1	1	-	-
PC35. ensure that the AC room is air-sealed and free from unnecessary heat-absorbing materials	1	1	-	-
PC36. assist in conducting energy audits to identify and address inefficiencies	-	-	-	1
NOS Total	40	50	-	10

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	G&J/N9952
NOS Name	Implement Circular Economy and Sustainable Practices in Gem and Jewellery Industry
Sector	Gem & Jewellery
Sub-Sector	
Occupation	Generic, Generic
NSQF Level	3
Credits	1
Version	1.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

Qualification Pack

G&J/N4709: Make and polish the Bottom facets of the diamond

Description

The OS unit uses advanced digital, mechanical, and sustainable methods for precision diamond polishing, including AI, laser alignment, micrometric calibration, thermal control, and reinforcement.

Scope

The scope covers the following :

- Fix advanced rough diamond through techniques
- Ensure high-precision moulding and maintain structural integrity
- Follow bottom facet polishing accuracy
- Optimize productivity & streamline workflow through smart techniques

Elements and Performance Criteria

Fix advanced rough diamond through techniques

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

- PC1.** evaluate the shape, grain, and cleavage lines of the rough diamond using a gemmological loupe, microscope, or 3D scanning system to determine optimal positioning for top facet yield.
- PC2.** clean the rough diamond and dop components thoroughly using ultrasonic cleaners and lint-free cloths to ensure adhesive effectiveness.
- PC3.** fix the diamond securely to the dop using traditional dop wax, shellac, or synthetic dop adhesives (like cyanoacrylate or heat-set epoxy) depending on the machine type and diamond size.
- PC4.** align the diamond on the dop referencing crystallographic axes using a marker, alignment jig, or a laser-guided alignment system to match the desired table facet plane.
- PC5.** verify alignment using optical pre-marking tools or computerized imaging systems such as DiaMark or Sarine technologies to confirm centering before faceting.
- PC6.** use a heat pen or flame torch to set the wax at appropriate temperature (typically between 70°C–90°C) for proper diamond hold without overheating.

Ensure high-precision moulding and maintain structural integrity

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

- PC7.** calibrate the dop stick with laser-guided or micrometric adjustment tools for high-accuracy facet symmetry.
- PC8.** ensure precise thermal setting or cooling of dop wax to avoid internal stress on the diamond.
- PC9.** inspect the fixed diamond under magnification for centering, tilt, and secure holding prior to faceting.
- PC10.** inspect the fixed diamond under magnification for centering, tilt, and secure holding prior to faceting.

Follow bottom facet polishing accuracy

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

Qualification Pack

- PC11.** use digital angle measurement systems to set accurate pavilion and bottom facet angles.
- PC12.** operate faceting machines with calibrated index gears to ensure equal and symmetrical bottom facets.
- PC13.** apply appropriate polishing scaife (diamond-charged wheel) based on facet type and required finish.
- PC14.** monitor facet development in real-time using magnified viewports or camera-assisted systems.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** principles of assessing rough diamond orientation using grain direction and cleavage lines to maximize yield and facet symmetry.
- KU2.** selection and application of traditional dop wax, modern adhesives, and reinforcement materials like shellac or polymers for secure and stable diamond fixing.
- KU3.** techniques for aligning diamonds on dop sticks using visual cues, digital aids, and micrometric or laser-calibrated systems for high-precision placement.
- KU4.** importance of verifying dop alignment through pre-marking methods or computerized tools to ensure accuracy before polishing
- KU5.** thermal control techniques during wax setting to avoid stress-related damage to the diamond while ensuring strong adhesion.
- KU6.** visual inspection methods under magnification to assess the quality of dop fixing and alignment.
- KU7.** accurate setting and measurement of bottom facet angles using digital systems and tools for consistent facet geometry.
- KU8.** functioning and operation of faceting machines, including the use of index gears for controlled bottom facet polishing.
- KU9.** proper selection and application of polishing scaife types and grit levels based on diamond characteristics and polishing stage.
- KU10.** use of real-time monitoring systems, pressure control, and polishing speed regulation to prevent facet damage and ensure uniformity

Generic Skills (GS)

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

- GS1.** read and write to follow work instructions and maintain records.
- GS2.** communicate effectively with team members and supervisors.
- GS3.** manage time efficiently to meet production deadlines.
- GS4.** identify and solve problems related to gemstone defects and processing.
- GS5.** apply critical thinking to improve processing methods and quality.

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Fix advanced rough diamond through techniques</i>	10	20	-	5
PC1. evaluate the shape, grain, and cleavage lines of the rough diamond using a gemmological loupe, microscope, or 3D scanning system to determine optimal positioning for top facet yield.	2	5	-	1
PC2. clean the rough diamond and dop components thoroughly using ultrasonic cleaners and lint-free cloths to ensure adhesive effectiveness.	2	5	-	1
PC3. fix the diamond securely to the dop using traditional dop wax, shellac, or synthetic dop adhesives (like cyanoacrylate or heat-set epoxy) depending on the machine type and diamond size.	2	5	-	1
PC4. align the diamond on the dop referencing crystallographic axes using a marker, alignment jig, or a laser-guided alignment system to match the desired table facet plane.	2	2	-	1
PC5. verify alignment using optical pre-marking tools or computerized imaging systems such as DiaMark or Sarine technologies to confirm centering before faceting.	1	2	-	1
PC6. use a heat pen or flame torch to set the wax at appropriate temperature (typically between 70°C–90°C) for proper diamond hold without overheating.	1	1	-	-
<i>Ensure high-precision moulding and maintain structural integrity</i>	10	20	-	5
PC7. calibrate the dop stick with laser-guided or micrometric adjustment tools for high-accuracy facet symmetry.	2	5	-	2
PC8. ensure precise thermal setting or cooling of dop wax to avoid internal stress on the diamond.	3	5	-	1
PC9. inspect the fixed diamond under magnification for centering, tilt, and secure holding prior to faceting.	3	5	-	1

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. inspect the fixed diamond under magnification for centering, tilt, and secure holding prior to faceting.	2	5	-	1
<i>Follow bottom facet polishing accuracy</i>	10	10	-	10
PC11. use digital angle measurement systems to set accurate pavilion and bottom facet angles.	3	4	-	3
PC12. operate faceting machines with calibrated index gears to ensure equal and symmetrical bottom facets.	3	2	-	3
PC13. apply appropriate polishing scaife (diamond-charged wheel) based on facet type and required finish.	3	2	-	3
PC14. monitor facet development in real-time using magnified viewports or camera-assisted systems.	1	2	-	1
NOS Total	30	50	-	20

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	G&J/N4709
NOS Name	Make and polish the Bottom facets of the diamond
Sector	Gem & Jewellery
Sub-Sector	
Occupation	Faceting and Polishing, Faceting and Polishing
NSQF Level	3
Credits	3
Version	1.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

Qualification Pack

G&J/N4710: Round and polish the Griddle of the diamond

Description

This OS unit covers precision rounding and polishing of diamond girdles, ensuring structural integrity, accuracy, and sustainable practices using traditional and modern techniques.

Scope

The scope covers the following :

- Fix and align rough diamond for girdle polishing
- Ensure structural integrity and secure hold during polishing
- Achieve high-precision girdle rounding
- Ensure Symmetry, Polish Quality and Angle Accuracy
- Optimize diamond girdling
- Mitigate Damage Risk and Maintain Safe Polishing Conditions
- Adopt Sustainable and Technologically Advanced Practices

Elements and Performance Criteria

Fix and align rough diamond for girdle polishing

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

- PC1.** assess the rough diamond's morphology and inclusions using 10x loupe, optical scanners, or 3D mapping tools to determine optimal fixing orientation for girdle rounding.
- PC2.** fix the diamond securely onto a dop stick using dop wax, shellac, or high-strength UV adhesives based on shape and equipment compatibility.
- PC3.** align the diamond with reference to natural grain, cleavage, and inclusions using binocular microscope or laser alignment system to ensure symmetry during girdling.
- PC4.** verify dop and diamond axis alignment using computerized alignment tools or pre-marking templates to ensure uniform girdle width
- PC5.** adjust dop angle and elevation using micrometer screws or digital positioning devices to align the diamond for effective girdle contact with polishing scaife.

Ensure structural integrity and secure hold during polishing

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

- PC6.** use proper temperature control techniques while applying wax or shellac on dop using temperature-regulated wax heater to prevent thermal shock.
- PC7.** inspect fixed diamond under 20x magnification to confirm central placement, horizontal level, and tight grip without surface contamination.
- PC8.** apply supplementary securing layer (e.g., shellac bead or UV resin collar) if necessary to support non-standard or irregular diamond shapes.
- PC9.** test the stability of the fixed diamond by gently rotating and tapping the dop before transferring to the girdling setup.

Achieve high-precision girdle rounding

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

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- PC10.** operate appropriate girdling machines (e.g., Sarin, Imahashi) based on diamond type and required precision.
- PC11.** control the rotation speed and pressure on the girdling wheel (scaife) using motor speed regulators and tactile control knobs to avoid over-abrasion.
- PC12.** use diamond-impregnated scaife or metal-bonded girdling wheels suitable for girdle rounding and symmetry refinement.
- PC13.** monitor girdle formation under magnified camera or loupe viewports to check for even width, consistency, and circularity.
- PC14.** mark girdle thickness limits using laser guides or digital templates to ensure conformity with cut specifications and reduce material wastage.

Ensure Symmetry, Polish Quality and Angle Accuracy

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

- PC15.** use facet indexing tools and symmetry checkers to verify uniform girdle height across all sides of the diamond.
- PC16.** apply finer polishing scaife or ceramic discs after initial shaping to achieve desired polish quality on the girdle surface.
- PC17.** validate polishing smoothness and luster using optical reflection test, light leakage scopes, or digital polish grading systems.

Optimize diamond girdling

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

- PC18.** plan girdling workflows in advance by setting machine parameters to reduce downtime and enhance productivity.
- PC19.** log girdle specifications and polishing parameters (e.g., scaife type, pressure, time) in digital quality control systems or batch record books.
- PC20.** utilize AI-assisted tools or computer vision systems for real-time analysis of girdle shape and size uniformity, or alternatively use digital calipers, high-resolution microscopes, or manual CAD measurement tools to assess shape and size consistency.

Mitigate Damage Risk and Maintain Safe Polishing Conditions

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

- PC21.** operate in a vibration-free polishing environment by using anti-vibration pads and regular equipment calibration to prevent chipping.
- PC22.** implement emergency-release mechanisms on dop holders to disengage the diamond in case of machine failure or sudden stress.
- PC23.** train operators on safe handling techniques including use of protective eyewear, gloves, and face masks during girdling and polishing.
- PC24.** avoid excessive pressure near facet junctions especially at the transition between girdle and crown/pavilion to prevent microfractures.

Adopt Sustainable and Technologically Advanced Practices

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

- PC25.** reuse dop sticks and scaife materials where feasible, and dispose of waste according to environmental standards.
- PC26.** train the workforce using sample stones or practice models for girdling to reduce wastage and improve first-time accuracy.

Qualification Pack

PC27. maintain full traceability of rough-to-polished process by tagging each diamond with digital identifiers for quality tracking and ethical compliance.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** natural geometry and crystallographic features of rough diamonds, such as grain direction, growth lines, and cleavage planes, which influence fixing and girdling orientation.
- KU2.** dop materials and adhesives, including wax, shellac, polymer resins, and UV-curing compounds, and their effects on grip strength, thermal sensitivity, and removability.
- KU3.** tools and instruments used in fixing and alignment, such as 10x 40x gemological loupes, binocular microscopes, laser-guided aligners, digital positioning sticks, and thermal heaters.
- KU4.** girdling and polishing equipment, including scaife machines, metal-bonded or diamond-embedded polishing wheels, index gears (96/120), and motorized dop holders
- KU5.** angle calibration and symmetry tools, such as protractors, auto-indexing systems, AI-assisted faceting software, and digital angle meters for consistent facet distribution.
- KU6.** process of achieving girdle roundness and uniform width, and the importance of symmetry in light reflection, certification grading, and optical performance.
- KU7.** monitoring systems and polishing diagnostics, including camera-based viewers, magnified scopes, and software overlays that track polishing progress in real-time.
- KU8.** damage prevention techniques, such as ensuring vibration-free setups, gentle pressure application, emergency-release dop systems, and anti-chipping practices.
- KU9.** safe handling procedures and protective gear usage, including safety eyewear, anti-slip gloves, airflow exhaust systems, and workstation hazard management.
- KU10.** sustainability and traceability practices, including reusable dop components, eco-friendly scaife materials, digital logs, and documentation for ethical sourcing audits.
- KU11.** workflow optimization strategies, like AI-assisted planning, digital facet progress logs, and machine setting presets that improve productivity and reduce errors.
- KU12.** training methods using simulation tools, such as virtual reality (VR) and augmented reality (AR) modules for practicing girdling without physical material loss.

Generic Skills (GS)

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

- GS1.** read and write to follow work instructions and maintain records.
- GS2.** communicate effectively with team members and supervisors.
- GS3.** manage time efficiently to meet production deadlines.
- GS4.** identify and solve problems related to gemstone defects and processing.
- GS5.** apply critical thinking to improve processing methods and quality.

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Fix and align rough diamond for girdle polishing</i>	5	10	-	1
PC1. assess the rough diamond's morphology and inclusions using 10x loupe, optical scanners, or 3D mapping tools to determine optimal fixing orientation for girdle rounding.	1	2	-	-
PC2. fix the diamond securely onto a dop stick using dop wax, shellac, or high-strength UV adhesives based on shape and equipment compatibility.	1	2	-	-
PC3. align the diamond with reference to natural grain, cleavage, and inclusions using binocular microscope or laser alignment system to ensure symmetry during girdling.	1	2	-	-
PC4. verify dop and diamond axis alignment using computerized alignment tools or pre-marking templates to ensure uniform girdle width	1	2	-	1
PC5. adjust dop angle and elevation using micrometer screws or digital positioning devices to align the diamond for effective girdle contact with polishing scaife.	1	2	-	-
<i>Ensure structural integrity and secure hold during polishing</i>	8	10	-	1
PC6. use proper temperature control techniques while applying wax or shellac on dop using temperature-regulated wax heater to prevent thermal shock.	2	2	-	-
PC7. inspect fixed diamond under 20x magnification to confirm central placement, horizontal level, and tight grip without surface contamination.	2	2	-	-
PC8. apply supplementary securing layer (e.g., shellac bead or UV resin collar) if necessary to support non-standard or irregular diamond shapes.	2	2	-	-
PC9. test the stability of the fixed diamond by gently rotating and tapping the dop before transferring to the girdling setup.	2	4	-	1

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Achieve high-precision girdle rounding</i>	4	10	-	1
PC10. operate appropriate girdling machines (e.g., Sarin, Imahashi) based on diamond type and required precision.	1	2	-	1
PC11. control the rotation speed and pressure on the girdling wheel (scaife) using motor speed regulators and tactile control knobs to avoid over-abrasion.	1	2	-	-
PC12. use diamond-impregnated scaife or metal-bonded girdling wheels suitable for girdle rounding and symmetry refinement.	1	2	-	-
PC13. monitor girdle formation under magnified camera or loupe viewports to check for even width, consistency, and circularity.	1	2	-	-
PC14. mark girdle thickness limits using laser guides or digital templates to ensure conformity with cut specifications and reduce material wastage.	-	2	-	-
<i>Ensure Symmetry, Polish Quality and Angle Accuracy</i>	4	10	-	2
PC15. use facet indexing tools and symmetry checkers to verify uniform girdle height across all sides of the diamond.	2	3	-	1
PC16. apply finer polishing scaife or ceramic discs after initial shaping to achieve desired polish quality on the girdle surface.	1	3	-	1
PC17. validate polishing smoothness and luster using optical reflection test, light leakage scopes, or digital polish grading systems.	1	4	-	-
<i>Optimize diamond girdling</i>	4	10	-	2
PC18. plan girdling workflows in advance by setting machine parameters to reduce downtime and enhance productivity.	2	3	-	1
PC19. log girdle specifications and polishing parameters (e.g., scaife type, pressure, time) in digital quality control systems or batch record books.	1	3	-	1

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC20. utilize AI-assisted tools or computer vision systems for real-time analysis of girdle shape and size uniformity, or alternatively use digital calipers, high-resolution microscopes, or manual CAD measurement tools to assess shape and size consistency.	1	4	-	-
<i>Mitigate Damage Risk and Maintain Safe Polishing Conditions</i>	3	5	-	2
PC21. operate in a vibration-free polishing environment by using anti-vibration pads and regular equipment calibration to prevent chipping.	1	1	-	1
PC22. implement emergency-release mechanisms on dop holders to disengage the diamond in case of machine failure or sudden stress.	1	1	-	1
PC23. train operators on safe handling techniques including use of protective eyewear, gloves, and face masks during girdling and polishing.	1	1	-	-
PC24. avoid excessive pressure near facet junctions especially at the transition between girdle and crown/pavilion to prevent microfractures.	-	2	-	-
<i>Adopt Sustainable and Technologically Advanced Practices</i>	2	5	-	1
PC25. reuse dop sticks and scaife materials where feasible, and dispose of waste according to environmental standards.	1	2	-	1
PC26. train the workforce using sample stones or practice models for girdling to reduce wastage and improve first-time accuracy.	1	2	-	-
PC27. maintain full traceability of rough-to-polished process by tagging each diamond with digital identifiers for quality tracking and ethical compliance.	-	1	-	-
NOS Total	30	60	-	10

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	G&J/N4710
NOS Name	Round and polish the Griddle of the diamond
Sector	Gem & Jewellery
Sub-Sector	Diamond Processing
Occupation	Faceting and Polishing
NSQF Level	3
Credits	2
Version	1.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

Qualification Pack

G&J/N4206: Generate the Cut quality report

Description

This OS unit covers fixing and polishing rough diamonds to optimize yield, precision, and cut quality while ensuring safety, sustainability, and traceability.

Scope

The scope covers the following :

- Fix and optimize advanced rough diamond through techniques
- Ensure high-precision moulding and maintain structural integrity
- Optimize pavilion polishing

Elements and Performance Criteria

Fix and optimize advanced rough diamond through techniques

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

- PC1.** assess the rough diamond's natural shape, dimensions, and orientation to ensure the most optimal positioning before beginning the fixing process. Use tools such as a digital microscope or scanner for precision.
- PC2.** securely fix the rough diamond onto the dop stick using dop wax, dop adhesives, or modern dop techniques to guarantee its stability during polishing. Utilize high-temperature tools or dop wax heating systems for secure adhesion.
- PC3.** align the rough diamond on the dop stick with attention to its grain structure and cleavage lines by referencing with a loupe or laser-based alignment tool for accurate positioning.
- PC4.** align the rough diamond on the dop stick with attention to its grain structure and cleavage lines by referencing with a loupe or laser-based alignment tool for accurate positioning.
- PC5.** inspect the fixed diamond for centering, tilt, and secure holding, using magnification tools such as a jewelers' loupe, high-power microscopes, or camera-assisted systems, before beginning the faceting process.
- PC6.** apply a pre-fix reinforcement layer, such as a shellac coat or polymer binder, to strengthen the diamond's hold if necessary, utilizing specialized application tools to ensure even coverage.

Ensure high-precision moulding and maintain structural integrity

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

- PC7.** calibrate the dop stick with micrometric tools, laser-guided systems, or automated measurement devices for high-precision facet symmetry. Ensure tools are regularly calibrated to meet specific cutting and polishing requirements.
- PC8.** maintain correct temperature control by ensuring that the dop wax or adhesive undergoes precise thermal setting or cooling to prevent unnecessary internal stresses on the diamond. Utilize temperature-controlled devices or digital thermal sensors.
- PC9.** inspect the alignment and centering of the diamond using magnification systems or camera-assisted visual inspections to verify that the diamond is perfectly centered before commencing the faceting process.

Qualification Pack

PC10. apply a reinforcing layer, such as a shellac or polymer-based coating, using precision application tools to secure the diamond further if necessary for additional structural support.

Optimize pavilion polishing with smart tools, safety, and sustainability

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

PC11. plan facet cutting sequences using optimization algorithms or production planning software to minimize material loss and improve efficiency

PC12. employ AI-driven systems for symmetry validation and alignment accuracy during pavilion facet progression, or alternatively use digital measurement tools, microscopes, and manual cad-based guidance to ensure precise facet alignment and symmetry.

PC13. log polishing progress and adjustments in digital workflow systems for real-time tracking, traceability, and quality audits.

PC14. ensure vibration-free polishing by calibrating and maintaining equipment to prevent chipping or fractures.

PC15. apply controlled pressure near girdle transitions using pressure gauges to prevent structural damage and ensure even distribution.

PC16. integrate automated safety mechanisms such as emergency-release dop holders and auto-stop systems to protect diamonds during malfunctions or overloads.

PC17. use sustainable fixing materials like re-usable dop sticks and eco-safe adhesives to reduce waste and environmental impact.

PC18. maintain digital traceability logs for each diamond using simple tracking software or spreadsheets to ensure ethical sourcing compliance.

PC19. practice bottom facet techniques using wax models or sample stones, helping improve skills and reduce production risks.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. specifications and geometry of rough diamonds, including grain directions, cleavage planes, and natural inclusions, and how they influence fixing and orientation for polishing and cut quality assessment.

KU2. dop materials and adhesives used for diamond fixing, such as traditional wax, shellac, modern polymer resins, and UV-curing compounds, including their curing times, holding strength, and environmental safety.

KU3. use and maintenance of fixing and alignment tools such as gemological loupes (10x to 40x), binocular microscopes, digital alignment sticks, thermal heaters, and laser-guided positioning systems.

KU4. functionality of polishing and faceting machinery, including scaife wheels, index gears (e.g., 96/120), motorized dop holders, angle calibration tools, and digital faceting machines.

KU5. process of bottom facet creation, including angle selection, symmetry control, and polishing progression, and how they impact light performance, brilliance, and certification grades.

KU6. polishing diagnostics and monitoring systems such as camera-based magnification, digital angle meters, and software overlays for real-time facet tracking and quality verification

KU7. damage prevention and safety techniques such as maintaining vibration-free conditions, applying correct pressure during polishing, using emergency dop-release systems, and operating within recommended speed thresholds.

Qualification Pack

- KU8.** sustainable practices in diamond processing, such as the use of reusable dops, eco-safe adhesives, and maintaining traceability through digital logging systems for ethical sourcing compliance.
- KU9.** sustainable practices in diamond processing, such as the use of reusable dops, eco-safe adhesives, and maintaining traceability through digital logging systems for ethical sourcing compliance.
- KU10.** use of virtual reality (VR) and augmented reality (AR) platforms for simulating fixing and faceting operations, providing training without material loss or operational risks.

Generic Skills (GS)

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

- GS1.** read and write to follow work instructions and maintain records.
- GS2.** communicate effectively with team members and supervisors.
- GS3.** manage time efficiently to meet production deadlines.
- GS4.** identify and solve problems related to gemstone defects and processing.
- GS5.** apply critical thinking to improve processing methods and quality.

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Fix and optimize advanced rough diamond through techniques</i>	10	20	-	5
PC1. assess the rough diamond's natural shape, dimensions, and orientation to ensure the most optimal positioning before beginning the fixing process. Use tools such as a digital microscope or scanner for precision.	2	4	-	1
PC2. securely fix the rough diamond onto the dop stick using dop wax, dop adhesives, or modern dop techniques to guarantee its stability during polishing. Utilize high-temperature tools or dop wax heating systems for secure adhesion.	2	4	-	1
PC3. align the rough diamond on the dop stick with attention to its grain structure and cleavage lines by referencing with a loupe or laser-based alignment tool for accurate positioning.	2	4	-	1
PC4. align the rough diamond on the dop stick with attention to its grain structure and cleavage lines by referencing with a loupe or laser-based alignment tool for accurate positioning.	2	4	-	1
PC5. inspect the fixed diamond for centering, tilt, and secure holding, using magnification tools such as a jewelers' loupe, high-power microscopes, or camera-assisted systems, before beginning the faceting process.	1	2	-	-
PC6. apply a pre-fix reinforcement layer, such as a shellac coat or polymer binder, to strengthen the diamond's hold if necessary, utilizing specialized application tools to ensure even coverage.	1	2	-	1
<i>Ensure high-precision moulding and maintain structural integrity</i>	10	20	-	2
PC7. calibrate the dop stick with micrometric tools, laser-guided systems, or automated measurement devices for high-precision facet symmetry. Ensure tools are regularly calibrated to meet specific cutting and polishing requirements.	2	5	-	1

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC8. maintain correct temperature control by ensuring that the dop wax or adhesive undergoes precise thermal setting or cooling to prevent unnecessary internal stresses on the diamond. Utilize temperature-controlled devices or digital thermal sensors.	2	5	-	-
PC9. inspect the alignment and centering of the diamond using magnification systems or camera-assisted visual inspections to verify that the diamond is perfectly centered before commencing the faceting process.	2	5	-	1
PC10. apply a reinforcing layer, such as a shellac or polymer-based coating, using precision application tools to secure the diamond further if necessary for additional structural support.	4	5	-	-
<i>Optimize pavilion polishing with smart tools, safety, and sustainability</i>	10	20	-	3
PC11. plan facet cutting sequences using optimization algorithms or production planning software to minimize material loss and improve efficiency	1	2	-	1
PC12. employ AI-driven systems for symmetry validation and alignment accuracy during pavilion facet progression, or alternatively use digital measurement tools, microscopes, and manual cad-based guidance to ensure precise facet alignment and symmetry.	1	2	-	-
PC13. log polishing progress and adjustments in digital workflow systems for real-time tracking, traceability, and quality audits.	1	2	-	-
PC14. ensure vibration-free polishing by calibrating and maintaining equipment to prevent chipping or fractures.	1	2	-	-
PC15. apply controlled pressure near girdle transitions using pressure gauges to prevent structural damage and ensure even distribution.	1	2	-	2

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC16. integrate automated safety mechanisms such as emergency-release dop holders and auto-stop systems to protect diamonds during malfunctions or overloads.	1	2	-	-
PC17. use sustainable fixing materials like re-usable dop sticks and eco-safe adhesives to reduce waste and environmental impact.	1	2	-	-
PC18. maintain digital traceability logs for each diamond using simple tracking software or spreadsheets to ensure ethical sourcing compliance.	1	2	-	-
PC19. practice bottom facet techniques using wax models or sample stones, helping improve skills and reduce production risks.	2	4	-	-
NOS Total	30	60	-	10

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	G&J/N4206
NOS Name	Generate the Cut quality report
Sector	Gem & Jewellery
Sub-Sector	Diamond Processing
Occupation	Diamond Planning
NSQF Level	2
Credits	1
Version	1.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

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. SSC/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. SSC/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.

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/N4702.Make and polish the Top facets of the diamond	30	70	0	0	100	20
G&J/N9902.Maintain health and safety at workplace	18	32	-	-	50	10
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	-	-	50	10
G&J/N9952.Implement Circular Economy and Sustainable Practices in Gem and Jewellery Industry	40	50	-	10	100	10
G&J/N4709.Make and polish the Bottom facets of the diamond	30	50	0	20	100	20
G&J/N4710.Round and polish the Griddle of the diamond	30	60	0	10	100	20
G&J/N4206.Generate the Cut quality report	30	60	0	10	100	10
Total	198	352	-	50	600	100

Qualification Pack

Acronyms

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

Qualification Pack

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.

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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.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	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.
Electives	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.
Options	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.