



Rough Cutter - Gemstone Processing

QP Code: G&J/Q6502

Version: 2.0

NSQF Level: 3

GJSCI || Gem Jewellery Skill Council of India, 4th Floor, Business Facilitation Centre, SEEPZ SEZ,
Andheri (E)

Mumbai 400096 || email:standards.qa@gjsci.org

Contents

G&J/Q6502: Rough Cutter - Gemstone Processing	3
<i>Brief Job Description</i>	3
Applicable National Occupational Standards (NOS)	3
<i>Compulsory NOS</i>	3
<i>Qualification Pack (QP) Parameters</i>	3
G&J/N6501: Cut rough gemstone procured from mine or supplier	5
G&J/N9901: Coordinate with others	11
G&J/N9902: Maintain health and safety at workplace	15
Assessment Guidelines and Weightage	18
<i>Assessment Guidelines</i>	18
<i>Assessment Weightage</i>	19
Acronyms	20
Glossary	21

G&J/Q6502: Rough Cutter - Gemstone Processing

Brief Job Description

The individual works with hands on high-speed rotating blade or sawing machine in order to slice the stone for maximum yield and as per the client order received. The rough cutter, also known as sawyer, cuts rough gemstones procured from mines or stone supplier as per the planning and marking given, in order to remove external impurities as well as inclusions if required and deliver scratch free stone for pre-shaping. It is the second stage of processing after assorting

Personal Attributes

The job requires the individual to have: attention to details; good eyesight; steady grip; ability to work in a process driven team, for prolonged hours in noisy environment and in seated position with patience. The individual must avert machine failures, errors and avoid safety hazards.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [G&J/N6501: Cut rough gemstone procured from mine or supplier](#)
2. [G&J/N9901: Coordinate with others](#)
3. [G&J/N9902: Maintain health and safety at workplace](#)

Qualification Pack (QP) Parameters

Sector	Gem & Jewellery
Sub-Sector	Gemstone Processing
Occupation	Rough Cutting
Country	India
NSQF Level	3
Credits	NA
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7313.1001
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	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	17/01/2018
Next Review Date	31/03/2022
NSQC Approval Date	15/03/2022
Version	2.0

G&J/N6501: Cut rough gemstone procured from mine or supplier

Description

This OS unit is about slicing or cutting the rough gemstone either for fulfilling customers specific requirement of shape and size or for maximizing yield, with or without inclusions

Scope

The scope covers the following :

- This unit/task covers the following:
- Preparing for cutting rough
- Cutting the rough gemstone
- Ensuring productivity
- Handling problems

Elements and Performance Criteria

Preparing for rough cutting

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

- PC1.** receive bag of gemstones and instructions from supervisor
- PC2.** match the stone type, shape, weight and number as mentioned on the bag
- PC3.** grasp the requirement of cutting, i.e., whether it is for customised shape, size and inclusion free irrespective of yield or for standardized set of stone lot of same shape, size and weight with maximum yield
- PC4.** check the gemstones properties such as hardness and sensitivity to heat and pressure in terms of colour and breakage
- PC5.** check if any treatment required on the precious stone to remove inclusions

Cutting the rough gemstone

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

- PC6.** cut stones cut within acceptable limits of weight loss
- PC7.** plan and mark for required shape, size and weight
- PC8.** use correct blade or saw
- PC9.** produce easy to shape cut stones in further processing
- PC10.** achieve accurate calibration
- PC11.** achieve maximum number of qc approved stones

Ensuring productivity

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

- PC12.** achieve number and carats of stones cut per day against target given
- PC13.** deliver scratch-less surface of cut stones
- PC14.** maintain stone loss within prescribed limits, particularly, in precious stone

Handling problems

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

- PC15.** deliver cut stones in time by reporting problems faced or anticipated well in advance

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** companys policies on: acceptable limits of stone loss, incentives, delivery standards, safety and hazards, integrity and personnel management
- KU2.** non-disclosure of confidential information provided by the company either orally or in writing marked as confidential
- KU3.** liability arising out of loss, theft or inadvertent disclosure of confidential information
- KU4.** work flow involved in gemstone processing of company
- KU5.** importance of the individuals role in the workflow
- KU6.** reporting structure
- KU7.** issuing and returning procedures followed by the company for rough gemstones
- KU8.** gemstone processing objective of the company, e.g. maximizing yield, maximizing clarity, etc.
- KU9.** basic gemology and properties of different types of stones
- KU10.** different types of stones such as precious, semi-precious, synthetic
- KU11.** market value of stone to understand the rationale for different acceptable levels of stone loss
- KU12.** origin of the stone, i.e., which mine, particularly, precious stones to read the softness/hardness as developed from precedence of use
- KU13.** which stone can be cabochon and which can be faceted
- KU14.** treatment of inclusions depending on the value of stone
- KU15.** different types of saw and their use for a specific stone
- KU16.** how to read size of stone using vernier calipers
- KU17.** how to weigh the stone on weigh scale
- KU18.** how to use blade sawing machine
- KU19.** how to maintain the upkeep of the machine
- KU20.** how to use water jet and keep the stone cool and cutting oil for lubrication
- KU21.** how to work in a safe environment, i.e., without injuries

Generic Skills (GS)

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

- GS1.** report stone losses via documentation as per company policy
- GS2.** read height, weight, dimensions of the stones facets as given on job sheets for planning and marking accordingly
- GS3.** read company rules and compliance documents required to complete the work
- GS4.** share work load when multiple deliverables are required
- GS5.** decide on the correct mark with ink, the contours of cut to be made in order to achieve the best possible shape, size and weight of stones obtained from the rough
- GS6.** convert shape on paper into cut stone
- GS7.** plan the stone cut for required shape and size

- GS8.** plan for achieving the required symmetry on the finally processed stone
- GS9.** plan and organize the machines maintenance schedule to have break down free production
- GS10.** adhere to specification, as required by the customer
- GS11.** resolve difficulties with respect to practicality of plan
- GS12.** suggest improvements in order to reduce stone loss limits
- GS13.** minimise stone loss below the prescribed limits
- GS14.** spot process disruption and reasons for delay

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Preparing for rough cutting</i>	7	14	-	-
PC1. receive bag of gemstones and instructions from supervisor	1	1	-	-
PC2. match the stone type, shape, weight and number as mentioned on the bag	1	2	-	-
PC3. grasp the requirement of cutting, i.e., whether it is for customised shape, size and inclusion free irrespective of yield or for standardized set of stone lot of same shape, size and weight with maximum yield	2	3	-	-
PC4. check the gemstones properties such as hardness and sensitivity to heat and pressure in terms of colour and breakage	2	3	-	-
PC5. check if any treatment required on the precious stone to remove inclusions	1	5	-	-
<i>Cutting the rough gemstone</i>	5	23	-	-
PC6. cut stones cut within acceptable limits of weight loss	1	5	-	-
PC7. plan and mark for required shape, size and weight	2	3	-	-
PC8. use correct blade or saw	1	4	-	-
PC9. produce easy to shape cut stones in further processing	-	5	-	-
PC10. achieve accurate calibration	1	3	-	-
PC11. achieve maximum number of qc approved stones	-	3	-	-
<i>Ensuring productivity</i>	1	8	-	-
PC12. achieve number and carats of stones cut per day against target given	-	3	-	-
PC13. deliver scratch-less surface of cut stones	-	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. maintain stone loss within prescribed limits, particularly, in precious stone	1	2	-	-
<i>Handling problems</i>	1	1	-	-
PC15. deliver cut stones in time by reporting problems faced or anticipated well in advance	1	1	-	-
NOS Total	14	46	-	-

National Occupational Standards (NOS) Parameters

NOS Code	G&J/N6501
NOS Name	Cut rough gemstone procured from mine or supplier
Sector	Gem & Jewellery
Sub-Sector	Diamond Processing, Gemstone Processing
Occupation	Rough Cutting
NSQF Level	3
Credits	TBD
Version	2.0
Next Review Date	17/01/2022

G&J/N9901: Coordinate with others

Description

This OS unit is about communicating with colleagues, seniors and outside parties in order to achieve the deliverables as per schedule

Elements and Performance Criteria

Interacting with supervisor

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

- PC1.** coordinate for receiving work instructions and raw materials from reporting supervisor
- PC2.** communicate to the reporting supervisor about process flow improvements, product defects received from previous process, repairs and maintenance of tools and machinery as required
- PC3.** communicate to reporting supervisor about operation details and hazards
- PC4.** interact with supervisor regarding compliance of company policy and rules

Interacting with colleagues within and outside the department

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

- PC5.** coordinate with colleagues to share work, as per the workload in order to achieve team goals
- PC6.** communicate and discuss work flow related difficulties in order to find solutions with mutual agreement
- PC7.** coordinate and receive feedback from quality control department
- PC8.** resolve conflicts by communicating with colleagues and other departments
- PC9.** communicate and discuss work coordinate with colleagues regarding multitasking in other departments with requirements

Interacting with outside parties

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

- PC10.** adhere to nondisclosure policy of the company in all outside coordination

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.** companys policies on non-disclosure of confidential information provided by the company either orally or in writing marked as confidential
- KU3.** liability arising out of loss, theft or inadvertent disclosure of confidential information
- KU4.** reporting structure
- KU5.** various categories of people that one is required to communicate and coordinate within the organization
- KU6.** importance of effective communication in the workplace like expressing and addressing grievances appropriately and effectively
- KU7.** importance of teamwork in organization and individual success
- KU8.** various components of effective communication

- KU9.** barriers to effective communication
- KU10.** common reasons for interpersonal conflict
- KU11.** what constitutes disciplined behavior for a working professional

Generic Skills (GS)

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

- GS1.** write instructions, remarks, job sheets, basic information, technical details etc. in preferred local language of communication and english
- GS2.** read preferred language of communication as prescribed by the company
- GS3.** read job sheets and interpret technical details mentioned in the job sheet
- GS4.** discuss task lists, schedules, and work-loads with co-workers
- GS5.** be a good listener
- GS6.** be effective in communicating the issues faced, to the supervisor
- GS7.** avoid using jargon, slang or acronyms when communicating
- GS8.** how to spot and communicate potential areas of disruptions in the work process and report the same
- GS9.** how to report supervisor or deal with a colleague individually, depending on the type of concern
- GS10.** how to plan work for maximum productivity
- GS11.** how to plan and organize the schedule for maintenance of tools and machines
- GS12.** how to convey accurate information to relevant internal as well as external customers
- GS13.** how to handle critical situations caused due to communication issues at workplace and solve problems without blaming others
- GS14.** how to analyse the work processes by interacting with others and adopting best practices
- GS15.** how to use prior experience to observe and reflect for development of ideas
- GS16.** how to think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s)
- GS17.** how to deal with clients lacking the technical background to solve the problem on their own
- GS18.** how to spot process disruptions, delays and report and communicate with solutions
- GS19.** how to identify immediate or temporary solutions to resolve delays
- GS20.** how to apply, analyze and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Interacting with supervisor</i>	-	6	-	-
PC1. coordinate for receiving work instructions and raw materials from reporting supervisor	-	1	-	-
PC2. communicate to the reporting supervisor about process flow improvements, product defects received from previous process, repairs and maintenance of tools and machinery as required	-	1	-	-
PC3. communicate to reporting supervisor about operation details and hazards	-	1	-	-
PC4. interact with supervisor regarding compliance of company policy and rules	-	3	-	-
<i>Interacting with colleagues within and outside the department</i>	2	10	-	-
PC5. coordinate with colleagues to share work, as per the workload in order to achieve team goals	-	3	-	-
PC6. communicate and discuss work flow related difficulties in order to find solutions with mutual agreement	-	2	-	-
PC7. coordinate and receive feedback from quality control department	1	1	-	-
PC8. resolve conflicts by communicating with colleagues and other departments	-	2	-	-
PC9. communicate and discuss work coordinate with colleagues regarding multitasking in other departments with requirements	1	2	-	-
<i>Interacting with outside parties</i>	1	1	-	-
PC10. adhere to nondisclosure policy of the company in all outside coordination	1	1	-	-
NOS Total	3	17	-	-

National Occupational Standards (NOS) Parameters

NOS Code	G&J/N9901
NOS Name	Coordinate with others
Sector	Gem & Jewellery
Sub-Sector	Jewellery Retail, Cast and diamonds-set jewellery
Occupation	Appraising and Valuation
NSQF Level	5
Credits	TBD
Version	2.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2025
NSQ Clearance Date	24/02/2022

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 dangers of accidents on the job and maintaining health and safety at workplace.

Elements and Performance Criteria

Health and safety in work area

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

- PC1.** identify and use appropriate protective clothing/equipment for specific tasks and work
- PC2.** identify hazardous job activities in his/her job and communicate the possible causes of risks or accidents in the workplace
- PC3.** carry out safe working practices while dealing with hazards to ensure safety of self and others
- PC4.** identify and avoid doing any tasks or activities in a wrong posture
- PC5.** practice appropriate working postures to minimise occupational health related issues

Fire safety

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

- PC6.** use the appropriate fire extinguishers on different types of fire
- PC7.** demonstrate rescue techniques applied during fire hazard
- PC8.** demonstrate good housekeeping in order to prevent fire hazards
- PC9.** demonstrate the correct use of any fire extinguisher

Emergencies, rescue and first aid procedures

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

- PC10.** administer appropriate first aid procedure to victims wherever required eg.in case of bleeding, burns, choking, electric shock etc.
- PC11.** respond promptly and appropriately to an accident or medical emergency
- PC12.** participate in emergency procedures such as raising alarm, safe evacuation, correct means of escape, correct assembly point etc.,

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** companys policies on: safety and hazards and personnel management
- KU2.** names and location of documents that refer to health and safety in work place
- KU3.** reporting structure
- KU4.** meaning of hazards and risks
- KU5.** health and safety hazards commonly present in the work place and related precautions
- KU6.** various dangers associated with use of electrical equipment
- KU7.** preventative and remedial actions to be taken in case of exposure to toxic material
- KU8.** methods of accident prevention

- KU9.** how different chemicals react and the related hazards
- KU10.** how to use machines and tools without causing any accident
- KU11.** importance of using protective clothing/ equipment while working
- KU12.** precautionary activities to prevent the fire accident
- KU13.** various causes of fire
- KU14.** techniques of using different fire extinguishers
- KU15.** different materials used for extinguishing fire
- KU16.** rescue techniques applied during a fire hazard
- KU17.** various types of safety signs and their meaning
- KU18.** appropriate basic first aid treatment relevant to different condition e.g. bleeding, minor burns, eye injuries etc.,
- KU19.** casualty lifting in case of an accident caused to a person

Generic Skills (GS)

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

- GS1.** read and comprehend basic content to read labels, charts, signages
- GS2.** read and comprehend basic english to read 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
- GS6.** ensure appropriate action in case of any emergencies, accidents or fire at the work location
- GS7.** analyze untoward incidents from the past and implement correct use of 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

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Health and safety in work area</i>	1	7	-	-
PC1. identify and use appropriate protective clothing/equipment for specific tasks and work	-	2	-	-
PC2. identify hazardous job activities in his/her job and communicate the possible causes of risks or accidents in the workplace	-	1	-	-
PC3. carry out safe working practices while dealing with hazards to ensure safety of self and others	-	1	-	-
PC4. identify and avoid doing any tasks or activities in a wrong posture	-	2	-	-
PC5. practice appropriate working postures to minimise occupational health related issues	1	1	-	-
<i>Fire safety</i>	-	6	-	-
PC6. use the appropriate fire extinguishers on different types of fire	-	1	-	-
PC7. demonstrate rescue techniques applied during fire hazard	-	2	-	-
PC8. demonstrate good housekeeping in order to prevent fire hazards	-	1	-	-
PC9. demonstrate the correct use of any fire extinguisher	-	2	-	-
<i>Emergencies, rescue and first aid procedures</i>	2	4	-	-
PC10. administer appropriate first aid procedure to victims wherever required eg.in case of bleeding, burns, choking, electric shock etc.	-	1	-	-
PC11. respond promptly and appropriately to an accident or medical emergency	1	2	-	-
PC12. participate in emergency procedures such as raising alarm, safe evacuation, correct means of escape, correct assembly point etc.,	1	1	-	-
NOS Total	3	17	-	-

National Occupational Standards (NOS) Parameters

NOS Code	G&J/N9902
NOS Name	Maintain health and safety at workplace
Sector	Gem & Jewellery
Sub-Sector	Jewellery Retail, Cast and diamonds-set jewellery
Occupation	Appraising and Valuation
NSQF Level	5
Credits	TBD
Version	2.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2025
NSQC Clearance Date	24/02/2022

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/N6501.Cut rough gemstone procured from mine or supplier	14	46	0	0	60	80
G&J/N9901.Coordinate with others	3	17	-	-	20	10
G&J/N9902.Maintain health and safety at workplace	3	17	-	-	20	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>