

Revised Application Documentation: Revision made by NSDA\_22 May 2015

**QUALIFICATION FILE – CONTACT DETAILS OF SUBMITTING BODY**

**Name and address of submitting body:**

**Gem & Jewellery Skill Council of India**

**Business Facilitation Centre, 3rd Floor**

**Seepz Special Economic Zone.**

**Andheri (E). Mumbai 400 096.**

**Name and contact details of individual dealing with the submission**

**Name:** Mr. Binit Bhatt

**Position in the organisation:** Chief Operating Officer

**Address if different from above:** Same as Above

**Tel number(s)** +91 22 28293940 & 41 & 43

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**List of documents submitted in support of the Qualifications File**

1. Career Map of CAM Machine Operator- Annexure 1
2. QP G&J/Q 2401– Annexure 2
3. Format for EOI for AA Accreditation from GJSCI - Annexure 3
4. Protocol for Accreditation of Assessment Agencies and Assessment Framework – Annexure 4
5. Skill gap report for Gem and Jewellery Sector\_2008-2022– Annexure 5

## QUALIFICATION FILE SECTION 1

### SUMMARY

Qualification Title	G&J/Q 2401 - CAM Machine Operator
Body/bodies which will assess candidates	<ul style="list-style-type: none"> <li>• Five Elements Business Solutions Pvt.Ltd.</li> <li>• CoCubes Technologies Pvt. Ltd</li> <li>• Cindrel Infotech Private Limited</li> <li>• Skill Training Assessment Management Partners, Ltd.</li> <li>• AssessPeople Services (India) Pvt. Ltd.</li> <li>• Manipal City and Guilds</li> <li>• Induslynk Training Services Pvt. Ltd (Mettl)</li> <li>• Navriti Technologies Pvt. Ltd</li> <li>• The Assessors Guild (TAG)</li> <li>• Aspiring Minds Assessment private Limited</li> <li>• Edu World Consultants Pvt. Ltd</li> </ul>
Body/bodies which will award the certificate for the qualification:	Gem & Jewellery Skill Council of India
Body which will accredit providers to offer the qualification.	Gem & Jewellery Skill Council of India
Occupation(s) to which the qualification gives access	CAM Machine Operator
Proposed level of the qualification in the NSQF.	<b>Level – 4</b>
Anticipated volume of training/learning required to complete the qualification.	60 hours
Entry requirements / recommendations.	Preferable Qualification shall be 12 <sup>th</sup> pass with training in CAD design
Minimum age	14 Years
Progression from the qualification.	Master maker (Hand)
Planned arrangements for RPL.	<p>Implementation Mechanism</p> <p>Facilitation</p> <p>The GJSCI has empowered the Training Partners to play the role of facilitation agency. The roles and responsibilities of the facilitation agency will be as follows:</p> <ol style="list-style-type: none"> <li>1. Survey the market and contact the persons who have acquired the skills of a particular trade in informal/non-formal settings and motivate them for getting their skills/competencies assessed, certified and recognized by a National Level Organization.</li> <li>2. Alternatively, a person who has acquired skills/competencies in informal/non-formal settings and desires to get his/her skills assessed, certified and recognized by a National Level Organization approaches the Training Partner.</li> <li>3. Training Partners will explain and assist interested candidates to register and submit the application form along with the required documents.</li> </ol>

### RPL Implementation Process:

In order to create an awareness about the RPL assessments, GJSCI will put in marketing efforts in targeted regions of the country to invite applications from the persons who desire to get their skills assessed, recognized and certified in relevant trade.

The set of documents along with the application form should be sent to the GJSCI office in the form of scanned copy and hard copy by post or in person by the Training Partner

<b>Group A (Skill based evidence)</b>	i) Proof of work experience/skills/competencies acquired in informal/non-formal settings (Self undertaking)
	ii) Work experience certificate from the employer if any
	iii) Work experience certificate from the local Jeweller's Manufacturer's association
<b>Group B (Literacy based evidence)</b>	iv) Copy of the Educational Qualification certificate, if any
	iv) Self undertaking by the candidate indicating the basic literacy level
<b>The candidate should submit the evidence at least one each from Group A and Group B.</b>	

1. The applications along with the evidence submitted by the candidates will be screened and reviewed by the Training Partner & GJSCI.
2. The eligible candidates will be informed accordingly.
3. The candidates who could not be eligible for RPL assessment, will be informed about the deficiency in the application form and evidence submitted by them to the Training Partner and will be asked to apply again after taking necessary remedial measures.
4. Training Partner will inform the candidates about the assessment centre, date and time for assessment well in advance. Efforts will be made to ensure that the candidate is assessed in his/her work place only.

#### Eligibility criteria:

1. Any artisan above the age of 18 with a minimum work experience of 6 months can get assessed in the RPL programme.
2. To validate the work experience, we shall need a letter from the local jeweller's association or the employing company certifying his/her experience.

International comparability where known.

Not Done yet

Formal structure of the qualification

Title of unit or other component  
(include any identification code used)

**Mandatory/**

Estimated size

Level

**Optional**

(learning hours)

G&J/N2401 Produce resin-based jewellery prototype using milling	Mandatory	<b>60</b>	<b>4</b>
G&J/N2402 Use rapid prototyping technology (RPT)	Mandatory		<b>4</b>
G&J/N9901 Respect and maintain IPR	Mandatory		<b>4</b>
G&J/N9902 Coordinate with others	Mandatory		<b>4</b>
G&J/N9905 Maintain occupational health and safety	Mandatory		<b>4</b>

Please attach any document giving further detail about the structure of the qualification – e.g. a Curriculum or Qualification Pack.

Give details of the document here:

1. QP G&J/Q 2401– Annexure 2

## SECTION 1

### ASSESSMENT

#### **Body or Bodies which will carry out assessment:**

- a) Five Elements Business Solutions Pvt.Ltd.
- b) CoCubes Technologies Pvt. Ltd
- c) Cindrel Infotech Private Limited
- d) Skill Training Assessment Management Partners, Ltd.
- e) AssessPeople Services (India) Pvt. Ltd.
- f) Manipal City and Guilds
- g) Induslynk Training Services Pvt. Ltd (Mettl)
- h) Navriti Technologies Pvt. Ltd
- i) The Assessors Guild (TAG)
- j) Aspiring Minds Assessment private Limited
- k) Edu World Consultants Pvt. Ltd

These assessing agencies have been chosen after thorough scrutiny of the credentials presented in response to the RFP. A set was made of the documents received from the assessment agencies. To check the knowledge of the assessing agencies they were required to set a question bank and were also required to find assessors with minimum 5 years of experience for the specified job roles. The documents were then verified by the assessment manager and cross verified by CEO / COO. Then the set of documents were submitted to the Governing concern for review and approving the assessment agency for the affiliation. The Governing concern reviewed the entire set along with set of question bank and the assessors profile and approved or rejected the same by signing the covering page.

#### **Will the assessment body be responsible for RPL assessment?**

Yes the assessment body shall be responsible for RPL assessment.

In RPL, the candidate has acquired the skills and knowledge while working and requires assessment and certification only. RPL is the acknowledgement of skills and knowledge obtained through:

- formal training
- work experience
- life experiences

The focus of RPL is the competence gained from these experiences; not how, when or where the learning occurred.

Process or steps in RPL assessments

1. Offering RPL to potential candidates
2. Providing information to the candidate
3. Self-assessment
4. Evidence collation
5. Assessment and making the decision
6. Feedback to the candidate
7. Documentation of outcomes

**Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, consistent and fair and show that these are in line with the requirements of the NSQF:**

- a) The emphasis is on 'learning-by-doing' and practical demonstration of skills and knowledge based on the performance criteria.
- b) The assessment papers are developed by Subject Matter Experts (SME) available with the Assessment Agency as per the performance and assessment criteria mentioned in the Qualification Packs.
- c) The assessments papers are also checked for the various outcome based parameters such as quality, time taken, precision, tools & equipment requirement, etc.
- d) The assessments are designed so as to assess maximum parts during the practical hands on work. Duties and responsibility of a CAM Machine operator are also assessed. The technical limitations at the training centres are taken care in theory and viva.
- e) The assessment agencies are instructed to hire assessors with integrity, reliability and fairness. Each assessor shall sign a document with its assessment agency by which they commit themselves to comply with the rules of confidentiality and conflict of interest, independence from commercial and other interests that would compromise impartiality of the assessments.
- f) The assessment agencies are instructed to ideally have assessor with right mix of industry experience, academia and these are detailed in Assessment Agency Protocol
- g) The assessors selected by Assessment Agencies are scrutinized and made to undergo training and introduction to Assessment Framework, competency based assessments, assessors guide etc.
- h) The assessors are provided with assessors guide developed by the Subject Matter Expert of the assessment agency or by Gem & jewellery SSC as per the assessment framework. The assessment guides are developed to ensure the maximum possible consistency / transparency in the assessment by different assessors and elaborate on the following
  1. Qualification Pack Structure
  2. Guidance for the assessor to conduct theory, practical and viva assessments
  3. Guidance for trainees to be given by assessor before the start of the assessments.
  4. Guidance on assessments process, practical brief with steps of operations practical observation checklist Attendance Sheet and mark sheet
  5. Viva guidance for uniformity and consistency across the batch.
  6. Guidance on assessment evidence collection

The assessment results are backed by evidences collected by assessors.

1. The assessor needs to collect a copy of the attendance for the training done under the scheme. The attendance sheets are signed and stamped by the in charge /Head of the Training Centre.
2. The assessor needs to verify the authenticity of the candidate by checking the photo ID card issued by the institute as well as any one Photo ID card issued by the Central/Government. The same needs to be mentioned in the attendance sheet. In case of suspicion, the assessor should authenticate and cross verify trainee's credentials in the enrolment form.
3. The assessor needs to take a photograph of all the students along with the centre name/ banner at the back as evidence.
4. The assessor needs to carry a camera to click photograph of the trainees working on the job and giving theory exam as evidence.
5. The assessor also needs to carry a photo ID card.

6. The assessor also needs to take the photographs as evidence from appropriate angles/ sides of the final work piece/job submitted by the trainee.
7. The details on assessment framework are elaborated in Gem & jewellery SSC Protocol for Accreditation of Assessment Agencies and Assessment Framework.

All accredited Assessment Agency follow the "Gem & jewellery SSC Protocol for Accreditation of Assessment Agencies and Assessment Framework". Each NOS in the Qualification Pack (QP) is assigned a relative weightage for assessment based on the criticality of the NOS. Therein each Performance Criteria in the NOS will be assigned marks for or practical based on relative importance, criticality of function and training infrastructure.

Please attach any documents giving further information about assessment and/or RPL.

Give details of the document(s) here:

1. Format for EOI for AA Accreditation from GJSCI - Annexure 3
2. Protocol for Accreditation of Assessment Agencies and Assessment Framework – Annexure 4

## ASSESSMENT EVIDENCE

Complete a grid for each grouping of NOS, assessment unit or other component as listed in the entry on the structure of the qualification on page 1.

<b>Job Role</b> CAM Machine Operator						
<b>Qualification Pack</b> G&J/Q2401						
<b>Sector Skill Council</b> Gem & Jewellery						
<b>Guidelines for Assessment</b>						
<p>1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC</p> <p>2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC</p> <p>3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)</p> <p>4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria</p> <p>5. To pass the Qualification Pack, every trainee should score a minimum of 70% in every NOS</p> <p>6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack</p>						
			<b>Marks Allocation</b>			
			<b>Total Mark (100)</b>	<b>Out Of</b>	<b>Theory</b>	<b>Skills Practical</b>
<b>1. G&amp;J/N2401 Produce resin-based jewellery prototype using milling</b>	PC1. accurately set up and calibrated CAM machine		<b>33</b>	6	1	5
	PC2. select appropriate cutting tools			6	1	5
	PC3. select resin type, size and thickness according to jewellery design			5	1	4
	PC4. accurately measure design dimensions (prong thickness, gap between diamonds)			5	1	4
	PC5. prepare detailed note for the precision required at the manufacturing stage			3	0	3
	PC6. inspect and report 3D design errors before CAM operation			4	1	3
	PC7. timely deliver resin based prototype/model for mass production of jewellery pieces			1	0	1



	PC8. produce number of prototype/model as per target given		1	0	1
	PC9. produce quality approved models as per the design and instructions given by merchandiser or designer		1	0	1
	PC10. minimise productions disruptions because of model imperfections		1	0	1
		<b>Total</b>	33	5	28
<b>2. G&amp;J/N2402 Use rapid prototyping technology</b>	PC1. accurately set up and calibrated CAM machine	<b>40</b>	6	1	5
	PC2. select appropriate cutting tools		6	1	5
	PC3. select resin type, size and thickness according to jewellery design		5	1	4
	PC4. accurately measure design dimensions (prong thickness, gap between diamonds)		5	1	4
	PC5. prepare detailed note for the precision required at the manufacturing stage		3	0	3
	PC6. inspect and report 3D design errors before CAM operation		3	0	3
	PC7. upload file correctly		2	0	2
	PC8. calibrate accurately for minimum vibration		3	0	3
	PC9. clean the prototype properly		2	0	2
	PC10. timely deliver resin based prototype/model for mass production of jewellery pieces		1	0	1
	PC11. produce number of prototype/model as per target given		1	0	1
	PC12. produce quality approved models as per the design and instructions given by merchandiser or designer		1	0	1
	PC13. minimise productions disruptions because of model imperfections		1	0	1
	PC14. ensure that multiple pieces on the prototype platform do not touch one another		1	0	1
		<b>Total</b>	40	4	36
<b>3. G&amp;J/N9901 Respect and maintain IPR</b>	PC1. be able to spot plagiarism and report	<b>3</b>	1	1	0

	PC2. be aware of patents and IPR		1	1	0
	PC3. not be involved in IPR violations		1	1	0
		<b>Total</b>	3	3	0
<b>4. G&amp;J/N9902 Coordinate with others</b>	PC1. understand the work output requirements	<b>12</b>	4	0	4
	PC2. comply with company policy and rule		1	1	0
	PC3. deliver quality work on time as required by reporting any anticipated reasons for delays		4	0	4
	PC4. put team over individual goals		1	1	0
	PC5. be able to resolve conflicts		1	1	0
	PC6. learn how to multi-task relevant activities		1	1	0
		<b>Total</b>	12	4	8
<b>5. G&amp;J/N9905 Maintain occupational health and safety</b>	PC1. spot and report potential hazards on time	<b>12</b>	1	1	0
	PC2. follow company policy and rules regarding use of hazardous materials		5	1	4
	PC3. attend and actively participate in the health and safety campaigns organised by the company		1	1	0
	PC4. use or wear safety gear as per the rules of the company		5	1	4
		<b>Total</b>	12	4	8

## **SECTION 2**

### **EVIDENCE OF NEED**

#### **What evidence is there that the qualification is needed?**

Please refer to the attached list of job roles and occupations as per the attachment and their career paths as per Annexure 1, which have been derived through extensive industry interactions. 15 Large scale industries, 12 Medium Size industries and 12 small industries were involved in the validation process to make the Qualification Packs viable to the current industry requirements.

#### **List of industries involved in the Validation process for the QP – CAM Machine Operator:**

<b>S No.</b>	<b>Large scale industries</b>	<b>Medium scale industries</b>	<b>Small scale industries</b>
1.	Onsaz Jewellery Creation	Kinu Baba Jewellery (India) Pvt Ltd	Padmavati Creations
2.	Mirar Jewels	Indus jewellery LLP	Madhhuri Gems
3.	jaipur Silver Jewels	GIE Gold creations	Gemworth
4.	Silver Moutain Inc	VNM Jewel Crafts LTD	Ruby Source
5.	Gemco Design	Jewelsmith (2 letters)	Gaurav Jewellers (2 letters)
6.	Yash Jewels ( 2 letters)	Shan gold	Sara Jewels
7.	Derewala	Rams Jewels (2 Letters)	Srg Exim
8.	Thottan exports (2 letters)	Sundaram (2 letters)	Saurav Jewellers Pvt Ltd
9.	Bombay Mnuufacturers (2 letters)	Vlmk (2 letters)	SCG Exports Pvt Ltd
10.	Priority ( 2 letters)	VSV (2 letters)	Gold Leaf
11.	Shantivijay	VTC Jewels (2 letters)	Sumati Chand Gouti Jewellers Pvt Ltd
12.	Neysa	Kinu Baba Jewellery (India) Pvt Ltd	Padmavati Creations
13.	Emerald		
14.	Kama		
15.	Onsaz Jewellery Creation		

#### **What is the estimated uptake of this qualification and what is the basis of this estimate?**

The estimated uptake under CAM Machine operator between 2013 and 2022 is 9231. For details of the calculations please Refer to Annexure-5.

#### **What steps were taken to ensure that the qualification(s) does/do not duplicate already existing or planned qualifications in the NSQF?**

QPs for Job Roles of various related SSC's were studied to ensure that there is no duplicity

#### **What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated?**

The comments, feedback and suggestions were collected through interaction with industry during September'14 to March'15. The same will be compiled and justifiable changes will be incorporated in the next/updated version of the QP. This QP is set to be revised post 15th July 2015.

Please attach any documents giving further information about any of the topics above.

Give details of the document(s) here:

1. Skill gap report for Gem & Jewellery sector\_2008-2022– Annexure 5

## SECTION 3

### SUMMARY EVIDENCE OF LEVEL

Summary of Direct Evidence:

Justify the NSQF level allocated to the QP by building upon the five descriptors of NSQF. Explain the reasons for allocating the level to the QP.

Generic NOS is/are linked to the overall authority attached to the job role.

Process required	Professional Knowledge	Professional Skills	Core Skills	Responsibility	Level
<p>The CAM Machine Operator gets work allocated from his supervisor, interprets the three-dimensional (3D) jewellery design and follows a routine procedure to feed the design parameters in the CAM machine and produce resin based prototypes. His job requires him to carry out the similar predictable activity of operating the CAM machine.</p>	<p>The CAM Machine Operator should be able to read the 2D hand-sketch designs and blueprints in terms of size, dimensions, shapes, materials and use the measuring tools such as vernier callipers, scale, etc. He should also have knowledge of different types of jewellery products, diamonds, tools, principals involved in production of precision designs, blueprints, drawings, designing techniques and principles of drawing jewellery shapes. He should also know the basic manufacturing techniques including types of diamonds and/or gemstones settings, RPT machine operations and wiper and milling technologies. He should be able to use computer, CAD workstation software and hardware, compact digital camera, scanners, MSOffice, data management software, internet,</p>	<p>This operator demonstrates repetitive skills like procedure for operating CAM workstation software and hardware and its applications to translate the 3D jewellery designs to prototype/ model, knows the process of making the master model, measures the size and thickness according to jewellery design and assess accuracy of alignment of fixtures and resin into the CAM machine. He also identifies and reports problems with faulty equipments or software operation to his seniors, seeks clarification on problems, applies good attention to detail and checks that his work is complete &amp; free of errors. He also spots plagiarism and reports and alert authorities in time of any potential sources of violations.</p>	<p>This operator writes clear and short sentences, reads job sheets and interprets technical details mentioned in the job sheet, reads notes, designs and instructions in terms of design concepts and performs the basic mathematical calculations used in computer aided modelling. Also does effective and error free communication with seniors and colleagues, builds team coordination, writes grievance complaint application, discusses task, schedules, and work-loads with co-workers and supervisors and helps them as required. Also understands basic banking procedures like account opening, basic banking operations and savings.</p>	<p>This operator receives design concepts and details from his supervisor and is responsible for preparing for RPT machine operations, producing resin based prototypes, doing basic quality check and returning produced resin jewellery model to his supervisor. He is also responsible for ensuring correctness and on time completion of the assigned tasks, reporting problems related to complexity of designs, faulty equipment or software operation to his supervisor and maintaining IPR and occupational health and safety.</p>	4

	etc., store or save files and folders and should follow the policies and standards maintained by the company.				
Follows level 4	Follows level 4	Follows level 4	Follows level 4	Follows level 4	Follows level 4

**OTHER EVIDENCE OF LEVEL** [This need only be filled in where evidence other than primary outcomes was used to allocate a level] **(Optional)**

Summary of other evidence (if used):

## **SECTION 4**

### **EVIDENCE OF RECOGNITION OR PROGRESSION**

**What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?**

Please refer to attached career path as per annexure 1 which clearly defines the career path.

Please attach any documents giving further information about any of the topics above.

Give details of the document(s) here:

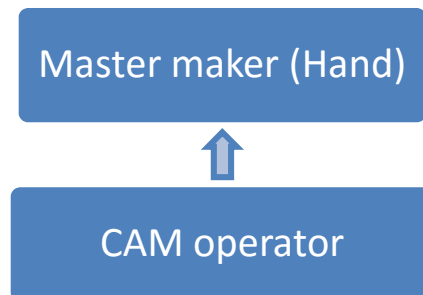
2. Career Path of Cam machine operator- Annexure 1
3. QP G&J/Q 2401- Annexure 2

## Annexure 1

### OM & Career Path

The career progression would be as follows:

1. CAM operator
2. Master maker (Hand)



[Annexure 2- QP G&J/ Q 2401](#)



**Annexure 3 - Format for EOI for AA Accreditation from GJSCI**

**Annexure 4- Protocol for Accreditation of Assessment Agencies and Assessment Framework**

**Annexure 5\_Manpower Requirement for Gems & Jewellery Sector for the period 2013-2022**