



National Vocational Certificate level 2, in (Gems& Jewellery Sector) “GEMSTONE FACETING”



**National Vocational and Technical Training Commission
(NAVTC)
Government of Pakistan**



TABLE OF CONTENTS

Contents

1. TITLE OF QUALIFICATION	3
2. INTRODUCTION.....	3
3. PURPOSE OF THE QUALIFICATION	5
4. MAIN OBJECTIVES OF THE QUALIFICATION.....	6
5. DATE OF VALIDATION	6
6. CODES OF QUALIFICATIONS.....	6
7. MEMBERS OF QUALIFICATIONS DEVELOPMENT COMMITTEE	8
8. ENTRY REQUIREMENTS	9
9. SUMMARY OF COMPETENCY STANDARDS	9
Competency Standard A: Perform Basic Gemstone identification.....	10
Competency Standard B: Perform Gemstone Trimming and free hand Shaping.....	13
Competency Standard C: Prepare gemstone for faceting.....	15
Competency Standard D: Perform Gemstone Faceting	19
Competency Standard E: Perform Gemstone Polishing.....	35



1. TITLE OF QUALIFICATION

National Vocational Certificate level 2, in (Gems and Jewellery Sector) “Gemstone Faceting”

2. INTRODUCTION

The National Competency Standards are written specifications of skill and knowledge competencies required in a particular trade. The competency standards are developed in collaboration with United Nations Industrial Development Organization (UNIDO), GIZ and National Vocational & Technical Training Commission (NAVTTTC).

Industry experts from the relevant industries from different geographical locations across Pakistan were consulted during the development process of these competency standards to ensure input and ownership of all the stakeholders. NAVTTTC approves these competency standards on the recommendation of Industry Advisory Group (IAG) for the Gems and Jewelry sector.

Powerful

This National Vocational Qualification is developed for the all beginners starting their jewelry making journey, this training is not required any experience, metal smithing skills or power tools. All you need will be a lot of enthusiasm and a few basic, inexpensive beading tools and supplies. There is a lot of information available in this qualification, including step-by-step techniques and beading projects. Some techniques can be mastered in a matter of minutes, while others might take some time to learn. A great starting point for beginners is to become acquainted with all the jewelry making supplies and tools, the details of jewelry supply information is also included in the module. After this training students can start with some of the basic earring projects, and then move on to fashion jewelry making projects.



The National Competency Standards could be used as a referral document for the development of curricula to be used by training institutions.

Training in the course is based on defined competency standards, which are industry oriented. Trainer being the facilitator of the training programme encourages and assists trainees to learn in a practical exposure and practice. Trainees are likely to work in groups (pairs) and all doing something different. Some are doing practical tasks in the workshop, some writing, some not even in the classroom or workshop but in another part of the building using specialist equipment, working on computers doing research on the Internet or the library. As trainees learn at different pace they might well be at different stages in their learning, thus learning must be tailored to suit individual needs. The following facilitation methods (teaching strategies) are generally employed:

- **Direct Instruction Method:** This might be effective when introducing a new topic to a larger group of trainees in a relative short amount of time. In most cases this method relies on one-way communication, hence there are limited opportunities to get feedback on the trainee's understanding.
- **Discussion Method:** This allows trainees to actively participate in sharing knowledge and ideas. It will help the trainer to determine whether trainees understand the content of the topic. On the other hand, there is a possibility of straying off topic under discussion and some trainees dominating others on their views.
- **Small Group Method:** Pairing trainees to help and learn from each other often results in faster knowledge/skill transfer than with the whole class. The physical arrangement of the classroom/workshop and individual assessment may be challenging. Analogy method should be incorporated.
- **Problem Solving Method:** This is a very popular teaching strategy for the training. Trainees are challenged and are usually highly motivated when they



gain new knowledge and skills by solving problems (Contingency skills). Trainees develop critical thinking skills and the ability to adapt to new learning situations (Transfer skills). It might be time consuming and because trainees sometimes work individually, they may not learn all the things that they are expected to learn.

- **Research Method:** This is used for workshops and laboratory tasks, field experiments, and case studies. It encourages trainees to investigate and find answers for themselves and to critically evaluate information. It however requires a lot of time and careful planning of research projects for the trainee.

The detail of the competency standards included in this qualifications given below:
National Vocational Certificate level 2, in (Gems and Jewelry Sector) “Gemstone Faceting”

- A. Perform gemstone identification
- B. Perform gemstones trimming and free hand shaping
- C. Prepare gemstone for faceting
- D. Perform gemstone faceting
- E. Perform gemstone polishing

3. PURPOSE OF THE QUALIFICATION

The purpose of the training is to provide skilled manpower for the value addition on gemstone of the existing Gems and Jewellery sector and related industry. This will improve the abilities and accreditation of a Gemstone Faceting Expert in terms of national and international standards applicable in the field of Gemstone Faceting. The availability of quality Gemstone Faceting Experts in the local and international markets will ultimately bring economic benefits to the producers and processors.

The core purpose of this qualification is to produce employable Gemstone Faceting Experts, who could provide advanced Services of cutting & polishing of gemstones.



In addition this qualification will prepare youth to be employee in Gemstone industry or work as an entrepreneur. To prepare and train students through skill training and enabling them to earn their living either through employment in industry or to be self-employed as Gemstone Faceting Expert.

4. MAIN OBJECTIVES OF THE QUALIFICATION

Gemstone Faceting qualification consists of theoretical and practical details required for the identification, Faceting and Polishing of precious, semi-precious, raw or polished gemstone. The main objectives of the qualification are as follows:

1. Perform Basic Gemstone Identification
2. Perform Gemstone Trimming & Free Hand Shaping
3. Prepare Gemstone for Faceting
4. Perform Gemstone Faceting
5. Perform Polishing of Gemstone

5. DATE OF VALIDATION

The level 2 of national vocational qualification on Gems and Jewelry Sector – Gemstone Faceting has been validated by the Qualifications Development Committee (QDC) members on March 2018 and will remain in currency until March 2023.

6. CODES OF QUALIFICATIONS

The International Standard Classification of Education (ISCED) is a framework for assembling, compiling and analyzing cross-nationally comparable statistics on education and training. ISCED codes for these qualifications are assigned as follows:



ISCED Classification for Fashion Jewelry Maker (Beads and Wires)	
Code	Description
0214G&J3	National Vocational Certificate level 2 in Gems and Jewellery Sector –“Gemstone Faceting”



7. MEMBERS OF QUALIFICATIONS DEVELOPMENT COMMITTEE

The following members participated in the qualifications development and validation of these qualifications:

Name	Designation	Organization	Email	Contact
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8. ENTRY REQUIREMENTS

The entry for National Vocational Certificate level 2, in (Gems and Jewellery Sector) “Gemstone Faceting” are given below:

Entry for assessment for this qualification is open. However, entry into formal training institutes, based on this qualification may require skills and knowledge equivalent to middle (Grade 8) with some working knowledge of this field.

9. SUMMARY OF COMPETENCY STANDARDS

Code	Competency Standards	Level	Credits	Category
0214G&J3 A	Perform basic gemstone identification	2	10	Functional
0214G&J3 B	Perform gemstones trimming and free hand shaping	2	10	Generic
0214G&J3 C	Prepare gemstone for faceting	2	10	Technical
0214G&J3 D	Perform gemstone faceting	2	30	Technical
0214G&J3 E	Perform gemstone polishing	2	20	Technical
	TOTAL	2	80	6 months



Competency Standard A: Perform Basic Gemstone identification

Overview: This competency standard covers the skills and knowledge required to have basic knowledge of Gemstones through identifications of physical properties.

Competency Units	Performance Criteria	Knowledge and understanding
A1: Properties of gemstone	Trainee will be able to: P1. Identify Gemstone on physical properties P2. Identify gemstones optical properties P3. Judge gemstone for faceting process on its properties	Trainee will able to know: K1. Physical properties (Cleavage, Breakage, Fracture and feathers, hardness and specific gravity) K2. Optical properties of Gemstone, (refractive index) K3. Color Zoning, Critical angle and orientation K4. Gemstone found in Pakistan
A2: identify the crystal structure of gemstone	Trainee will be able to: P1. Identify the crystal structure based on wooden crystal sample	Trainee will able to know: K1. Understanding of seven basic crystal system (cubic, Tetragonal, hexagonal, trigonal, orthorhombic, monoclinic and triclinic)

Critical Evidence(s) Required

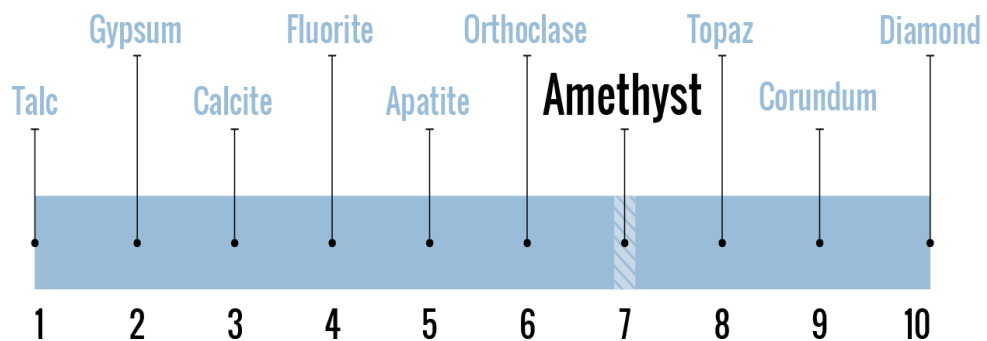
The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- To understand physical properties of gemstones.
- To understand physical properties of gemstones.
- To understand crystal systems of gemstone



1 TALC		6 FELDSPAR	
2 GYPSUM		7 QUARTZ	
3 CALCITE		8 TOPAZ	
4 FLOURITE		9 CORUNDUM	
5 APATITE		10 DIAMOND	

Mohs Hardness Scale





Tools and equipment required

- Loup 10X
- Harness pencil
- Crystals Models
- Tweezers
- Various gemstones as per need



Competency Standard B: Perform Gemstone Trimming and free hand Shaping

Overview: This competency standard covers the skills and knowledge required to carry out trimming, sawing and shaping of gemstones with the help of various machines and tools.

Competency Units	Performance Criteria	Knowledge and understanding
B1: Perform trimming	<i>Trainee will be able to:</i> P1. Judge stone for trimming process. P2.Removal of unwanted portion P3.Identify gemstones optical properties P4.Judge gemstone for faceting process on its properties	Trainee will able to know: K1. Introduction to Trim saw machine and blades various thickness and size K2. Adopt appropriate safety measures for trimming process
B2: Perform freehand shaping	<i>Trainee will be able to:</i> P1.Select appropriate tools and machine for shaping P2.Adopt safety precaution and measures P3.Ensure adequate water supply during shaping process P4. Select gemstone cut according to requirement P5. Shape gemstone to selected cut	<i>Trainee will able to know:</i> K1.Understanding of tools, machine and its operations K2.Understand the types of gemstone cutting styles for faceting K3.Prepare stone for shaping

Critical Evidence(s) Required

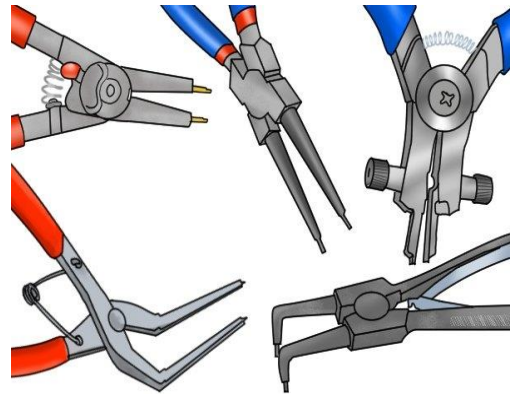
The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:



- To perform trimming and sawing of gemstones
- To perform shaping of gemstones

Tools and equipment required

- Trim saw machine
- Various types of blades for trimming
- Plier with Diamond coated tips
- Grinder with diamond coated wheels





Competency Standard C: Prepare gemstone for faceting

Overview: This competency standard covers the skills and knowledge required to carry out orientations, doping and faceting of gemstone by using various machines and tools.

Competency Units	Performance Criteria	Knowledge & understanding
C1: Gemstone doping	<i>Trainee will be able to:</i> P1.Arrange doping process material P2.Select dop stick as per requirement P3.Fix the stone of dop stick P4.Perform doping process of stone P5.Verify doped stone according to requirement	Trainee will be able to know: K1.Understand doping material K2.Understand color, luster, reflection K3.Type and usage of dop stick K4.Know the doping procedure
C2: Prepare stone for faceting	<i>Trainee will be able to:</i> P1. Adopt safety measures P2.Ensure adequate water supply for faceting P3.Install master lap as per requirement P4.Adjust faceting unit and faceter with leveling dop sticks P5.Fix doped stone in faceter	<i>Trainee will be able to know:</i> K1.Knowledge about faceting unit and faceter K2. Know the diamond coated laps and types K3. Understand adjustment procedure of faceting unit and faceter K4. Knowledge about index grade 32, 64, 72, 80, 96, 120 as per requirement of cut



C3: Gemstone orientation	<i>Trainee will be able to:</i> P1. Make pre-form of stone for faceting P2. Perform Orientation	<i>Trainee will be able to know:</i> K1. Understand orientation process
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Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

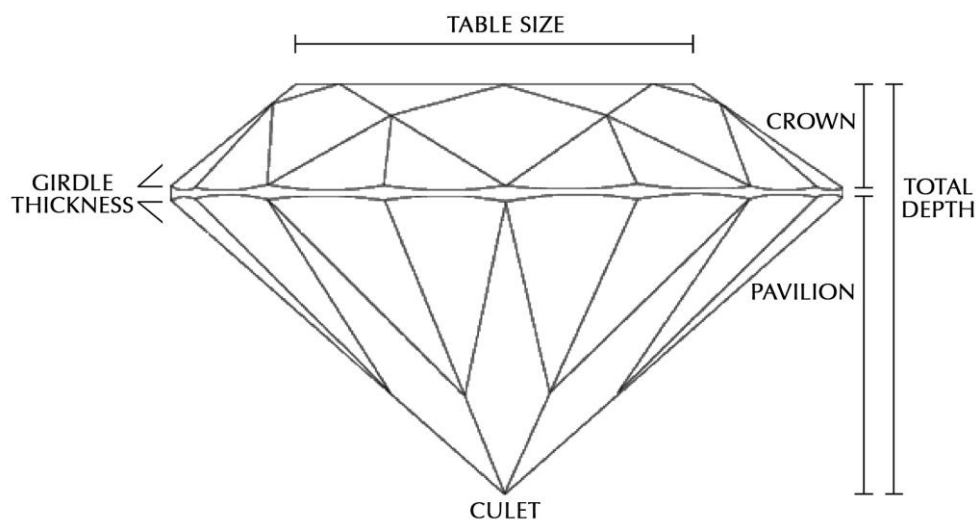
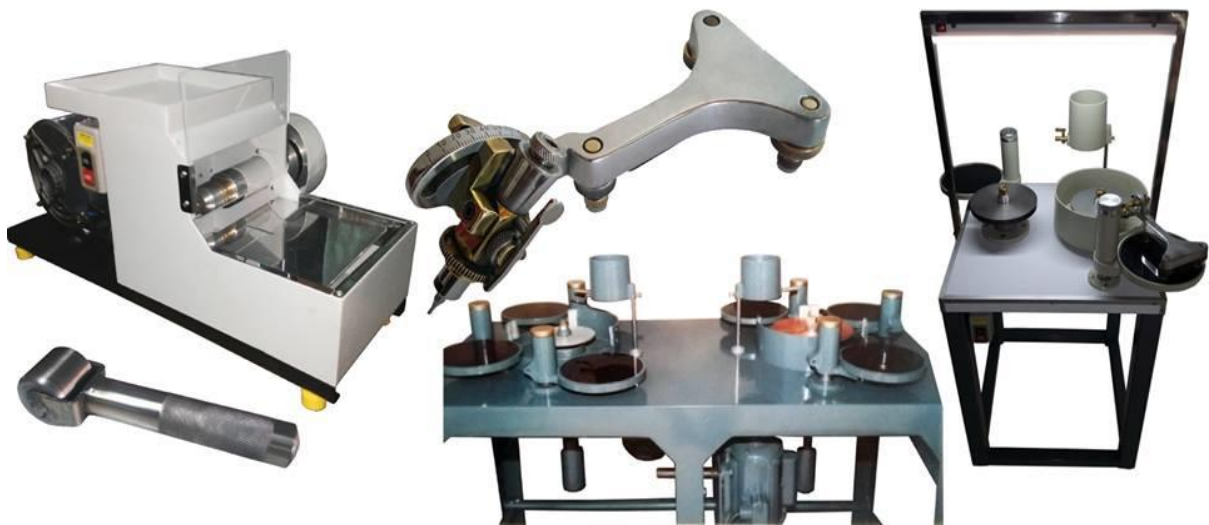
- To orient the give gemstone
- To dop the given gemstone.
- Perform faceting on given gemstone

Tools and equipment required

- Doping unit
- Dopsticks (round, V-Shaped and plate)
- Sprit Lamp and sprit
- Doping wax
- Master lap
- Faceting Unit
- Facetor (J-P-C)
- L-keys



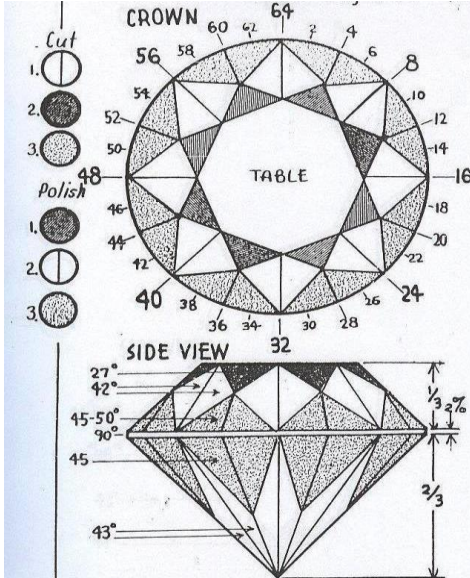
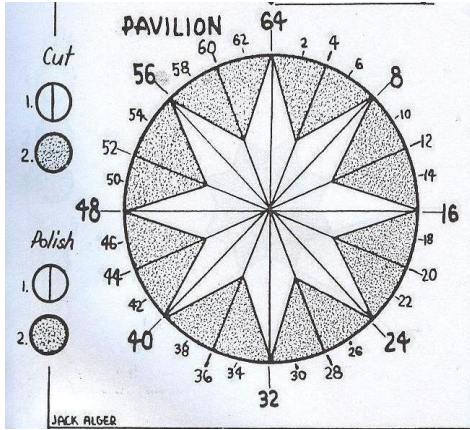


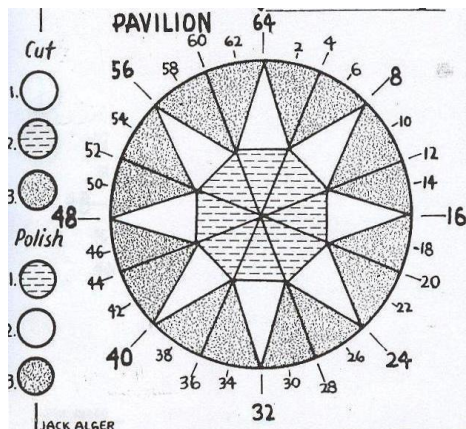
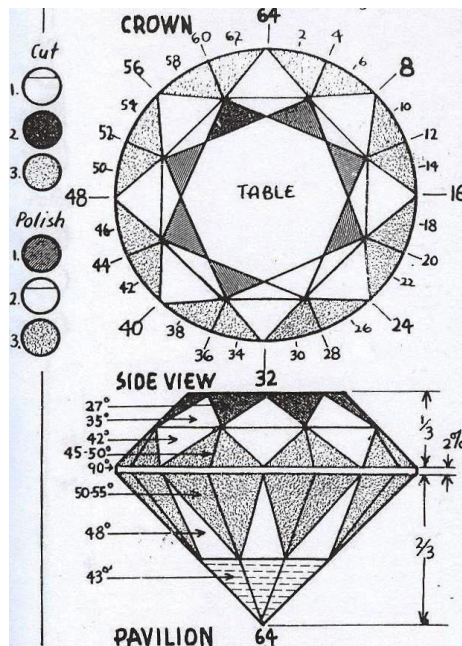


Competency Standard D: Perform Gemstone Faceting

Overview: This competency standard covers the skills and knowledge required to carry out orientations, doping and faceting of gemstone by using various machines and tools in different cuts.

Competency Units	Performance Criteria	Knowledge & understanding
D1: Perform round cut The diagram illustrates the facets and angles of a round brilliant cut diamond. The crown facets are numbered 1 through 32, and the pavilion facets are numbered 33 through 64. The side view shows the girdle and the angles of the facets. The angles are: Crown Angle 43°, Pavilion Angle 41°, Girdle Angle 44°, and Table Angle 0°. The diagram shows the order of cutting and polishing steps for a round brilliant cut diamond. The steps are: 1. Crown Angle 43°, 2. Crown Angle 45°, 3. Pavilion Angle 41°, 4. Girdle Angle 44°, 5. Table Angle 0°.	Trainee will be able to: P1. Prepare pre-form of stone requirement P2. Put main facet Angle 42 indexing 64-32 , 16-48, 8-40, 24-56 P3. Star facet Angle 27, indexing 4-12-20-28-36-44-52-60, P4. Girdle facet angle 44 to 51, (adjustable), indexing 8-2+-2, 16+-2, 24+-2, 32+-2, 40+-2, 48+-2, 56+-2, 64+-2, P5. Angle 0, for table indexing 64 P6. Marking with aluminum 64 index. P7. Re-dop pavilion side P8. Adjust main facet opposite of crown main facet P9. Angle 43, index 64-32 , 16-48, 8-40, 24-56 P10. Girdle facet angle 44 to 51, (adjustable), indexing 8-2+-2, 16+-2, 24+-2, 32+-2, 40+-2, 48+-2, 56+-2, 64+-2,	Trainee will be able to know: K1. Know the procedure of round cut

D2: Perform vertical modified main faceting  	Trainee will be able to: P1. Put main facet P2. Angle 42 indexing 64-32 , 16-48, 8-40, 24-56 P3. Modified vertical angle 42 indexing 8-+1, 16-+1, 24-+1, 32-+1, 40-+1, 48-+1, 56-+1, 64-+1 P4. Star facet Angle 27, indexing 4-12-20-28-36-44-52-60, P5. Girdle facet angle 44 to 51, (adjustable), indexing 8-2+-2, 16+-2, 24+-2, 32+-2, 40+-2, 48+-2, 56+-2, 64+-2, P6. Angle 0, for table indexing 64 P7. Marking with aluminum 64 index. P8. Re-dop pavilion side P9. Adjust main facet opposite of crown main facet P10. Angle 43, index 64-32 , 16-48, 8-40, 24-56 P11. Modified main facet in pavilion angle 43 indexing 8-+1, 16-+1, 24-+1, 32-+1, 40-+1, 48-+1, 56-+1, 64-+1	Trainee will able to know: K1. Know the procedure of vertical modified main faceting
D3: Perform horizontal modified cut	Trainee will be able to: Put main facet P1. Angle 42 indexing 64-32 , 16-48, 8-40, 24-56 P2. Modified horizontal angle 35 64-32 , 16-48, 8-40, 24-56 P3. Star facet Angle 27,	Trainee will able to know: K1. Know the horizontal modified cut



indexing 4-12-20-28-36-44-52-60,

P4.Girdle facet angle 44 to 51, (adjustable), indexing 8-2+-2, 16+-2, 24+-2, 32+-2, 40+-2, 48+-2, 56+-2, 64+-2

P5.Angle 0, for table indexing 64

P6.Marking with aluminum 64 index.

P7.Re-dop pavilion side

P8.Adjust main facet opposite of crown main facet

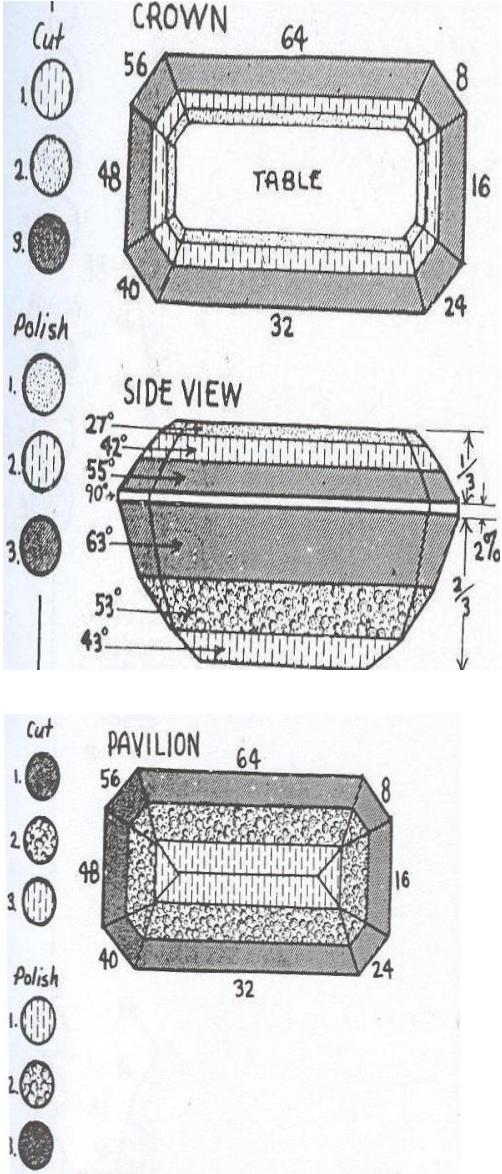
P9.Angle 43, index 64-32 , 16-48, 8-40, 24-56

P10.Modified horizontal cut

P11.Angle 49, index 64-32 , 16-48, 8-40, 24-56

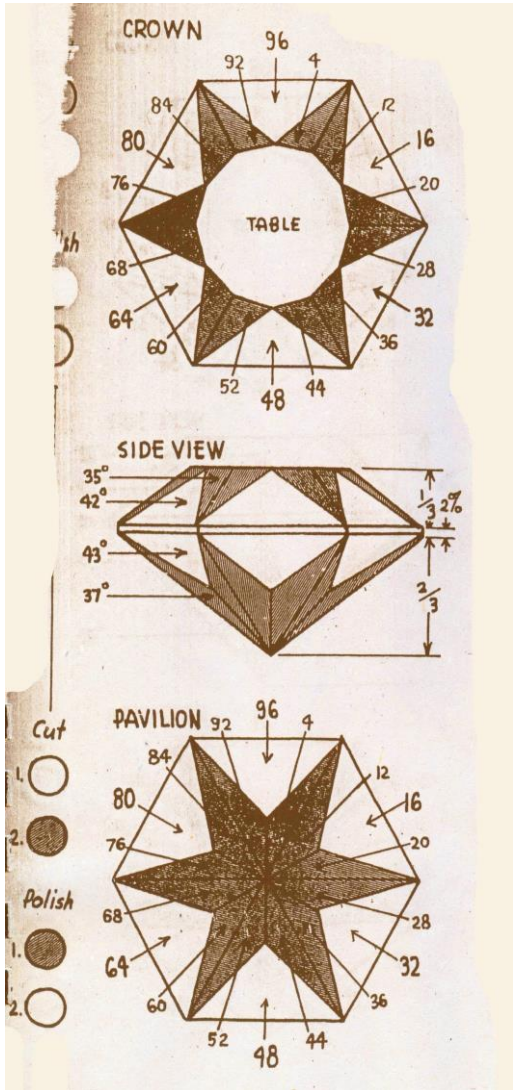
P12.Girdle facet angle 51 to 55, (adjustable), indexing 8-2+-2, 16+-2, 24+-2, 32+-2, 40+-2, 48+-2, 56+-2, 64+-2,



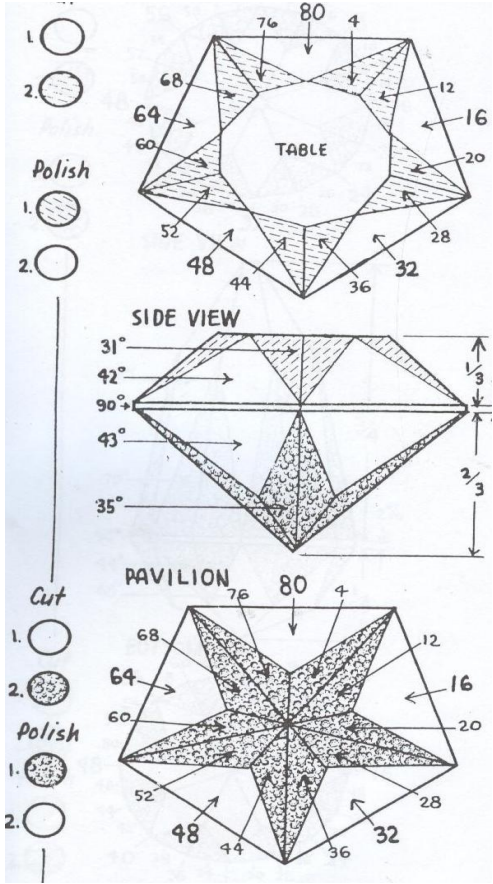
D4: Perform step cut  The diagram illustrates the step cut process. The top view shows a rectangular stone with dimensions: length 64, width 16, table 32, and girdle thickness 8. The side view shows the crown and pavilion with angles: 27°, 42°, 55°, 90°, 63°, 53°, and 43°. The pavilion view shows the bottom of the stone with dimensions: length 64, width 16, and girdle thickness 8. The diagram also includes a legend for 'Cut' and 'Polish' stages.	Trainee will be able to: P1. Cut girdle first angle 90 indexing 64-32 , 16-48 as per design Put main facet P2. Angle 42 indexing 64-32 , 16-48, 8-40, 24-56 P3. Star facet angle 27 Indexing 64-32 , 16-48, 8-40, 24-56 P4. Angle 0 Indexing 64-32 , 16-48, 8-40, 24-56 Four facet cut angle 90 indexing 8-40, 24-56 P5. Re-dop pavilion side P6. Adjust main facet opposite of crown main facet P7. Angle 63, index 64-32 , 16-48, 8-40, 24-56 P8. Angle 53, index 64-32 , 16-48, 8-40, 24-56 P9. Angle 43, index 64-32 , 16-48	Trainee will be able to know: K1. Know the procedure of step cut
D5: Perform French star cut	Trainee will be able to: P1. Cut girdle first angle 90 indexing 64-32 , 16-48 as per design Put main facet P2. Angle 42 indexing 64-32 , 16-48	Trainee will be able to know: K1. Know the procedure of star cut

	P3.Star facet angle 16-20(adjustable) Indexing 8-24, 40-56 P4.Angle 0, for table indexing 64 Re-dop pavilion side P5.Adjust main facet opposite of crown main facet P6.Angle 63 indexing 64-32 , 16-48 P7.Angle 53 indexing 64-32 , 16-48 P8.Angle 43 indexing 64-32 , 16-48	
D6: Perform double star cut	Trainee will be able to: P1.Cut girdle first angle 90 indexing 64-32 , 16-48 as per design P2.Angle 42 indexing 64-32 , 16-48 P3.Star facet angle 24 to 28, (adjustable), indexing 8-2+-2, 24+-2, 40+-2, 56+-2 P4.Angle 0, for table indexing 64 P5.Marking with aluminum. P6.Re-dop pavilion side	Trainee will be able to know: K1.Know the procedure of double star cut



	P7.Adjust main facet opposite of crown main P8.Angle 63, index 64-32 , 16-48, 8-40, 24-56 P9.Angle 53, index 64-32 , 16-48, 8-40, 24-56 P10.Angle 43, index 64-32 , 16-48	
D7: Perform Mitchell six rays star cut(96 index)  The diagram illustrates the Mitchell six rays star cut in four views: Crown, Table, Side View, and Pavilion. The Crown view shows a six-pointed star with facets indexed 4, 12, 16, 20, 28, 32, 36, 44, 48, 52, 60, 64, 68, 76, 80, 84, and 96. The Table view shows a central octagonal table. The Side View shows the profile of the stone with angles 35°, 42°, 43°, and 37°. The Pavilion view shows the bottom of the stone with facets indexed 4, 12, 16, 20, 28, 32, 36, 44, 48, 52, 60, 64, 68, 76, 80, 84, and 96. A legend indicates the cut and polish for each facet.	Trainee will be able to: P1. Arrange polishing material as per requirement P2. Cut girdle first angle 90 indexing 96-48, 16-64, 32-80 as per design P3. Angle 42 indexing 64-32 , 16-48 P4. star facet angle (adjustable) P5. indexing 4-12,20-28, 36-44, 52-64, 68-76, 84-92 P6. Angle 0, for table indexing 96 Marking with aluminum. P7. Re-dop pavilion side P8. Adjust main facet opposite of crown main Angle 37, P9. indexing 4-12,20-28, 36-44, 52-64, 68-76, 84-92	Trainee will be able to know: K1.Know the procedure of Mitchell six rays star cut(96 index)



D8: Perform Mitchell five rays star cut(80 index) 	Trainee will be able to: P1. Arrange polishing material as per requirement P2. Cut girdle first angle 90 indexing 80, 16-64, 32-48 as per design P3. Ten facet indexing 4-12, 20-28, 36-44, 52-60, 68-76 P4. Angle 0, for table indexing 80 Marking with aluminum. P5. Re-dop pavilion side P6. Adjust main facet opposite of crown main P7. Angle 43-80, 16-64, 32-48 Ten facet P8. Angle 35indexing 4-12, 20-28, 36-44, 52-60, 68-76	Trainee will able to know: K1.Know the procedure of Mitchell five rays star cut(80 index)
D9: Perform Jubilee cut	Trainee will be able to: P1. Arrange polishing material as per requirement P2. Cut girdle first angle 90 P3. Angle 22, indexing 64-32 , 16-48, 8-40, 24-56 P4. angle 32, indexing 4-12, 20-28, 36-44, 52-60 P5. Angle 43, Indexing 8+1,	Trainee will able to know: K1.Know the procedure of Jubilee cut

The diagram illustrates the facets and indexing for a brilliant bead cut. It includes three views: Crown, Side View, and Pavilion. The Crown view shows facets indexed 1-36. The Side View shows angles from 25° to 50°. The Pavilion view shows facets indexed 1-36. A legend on the left indicates 'Cut' and 'Polish' patterns.	16-+1, 24-+1, 32-+1, 40-+1, 48-+1, 56-+1, 64-+1 P6. Angle 47, Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P7. indexing 96 P8. Marking with aluminum. P9. Re-dop pavilion side P10. Adjust main facet opposite of crown main P11. Angle 49, Indexing 64-32, 16-48, 8-40, 24-56 P12. Angle 39, Indexing 64-32, 16-48, 8-40, 24-56 P13. Angle 48, Indexing 4-12, 20-28, 36-44, 52-60 P14. Angle 54 Indexing 8-2+-2, 16+-2, 24+-2, 32+-2, 40+-2, 48+-2, 56+-2, 64+-2,	
D10: Perform brilliant bead cut	Trainee will be able to: P1. Cut girdle first angle 90 P2. Angle 30 and indexing 64-32, 16-48, 8-40, 24-56, 4-12, 20-28, 36-44, 52-60 P3. Angle 45 Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P4. Angle 60 and indexing 64-32, 16-48, 8-40, 24-56, 4-12, 20-28, 36-44, 52-60	Trainee will be able to know: K1. Know the procedure of brilliant bead cut

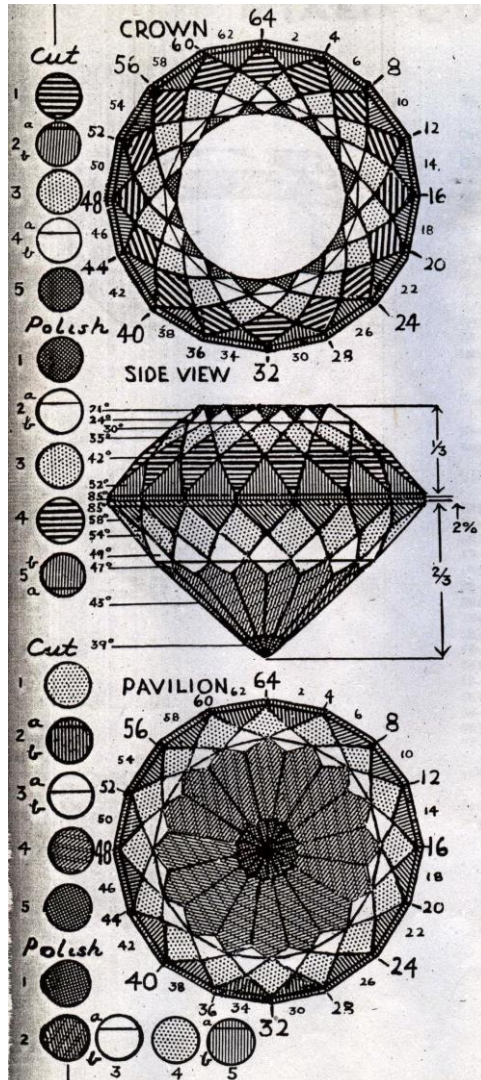


	P5. Angle 75 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P6. Angle 90 and indexing 64-32 , 16-48, 8-40, 24-56, 4-12, 20-28, 36-44, 52-60 P7. Angle 0, for table indexing 64 Marking with aluminum. P8. Re-dop pavilion side P9. Adjust main facet opposite of crown main P10. Angle 90 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P11. Angle 75 and indexing 64-32 , 16-48, 8-40, 24-56, 4-12, 20-28, 36-44, 52-60 P12. Angle 60 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P13. Angle 45 and indexing 64-32 , 16-48, 8-40, 24-56, 4-12, 20-28, 36-44, 52-60 P14. Angle 30 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P15. Angle 0, for table indexing 64	
D11. Perform double diamond horizontal cut	<i>Trainee will be able to</i> P1. Cut girdle first angle 90 P2. Angle 52 and indexing 64-	<i>Trainee will be able to know:</i> K1. Know the procedure of



	32 , 16-48, 8-40, 24-56 P3. Angle 70 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P4. Angle 38 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P5. Angle 31 and indexing 64-32 , 16-48, 8-40, 24-56 P6.Angle 21 and indexing 64-32 , 16-48, 8-40, 24-56 P7.Angle 10 and Indexing 4-12, 20-28, 36-44, 52-60 P8. Angle 0, for table indexing 64 Marking with aluminum. P9. Re-dop pavilion side P10. Adjust main facet opposite of crown main P11. Angle 62 and indexing 64-32 , 16-48, 8-40, 24-56 P12.Angle 58 and indexing 64-32 , 16-48, 8-40, 24-56 P13. Angle 79 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P14. Angle 49 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P15. Angle 42 and indexing 64-32 , 16-48, 8-40, 24-56	double diamond horizontal cut
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D12. Perform Portuguese cut



Trainee will be able to

P1. Arrange polishing material as per requirement

P2. Cut girdle first angle 90

P3. Angle 42 and indexing 64-32 , 16-48, 8-40, 24-56,4-12, 20-28, 36-44, 52-60

P4. Angle 52 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2

P5. Angle 85 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2

P6. Angle 35 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2

P7. Angle 30 and indexing 64-32 , 16-48, 8-40, 24-56,4-12, 20-28, 36-44, 52-60

P8. Angle 24 and indexing 64-32 , 16-48, 8-40, 24-56,4-12, 20-28, 36-44, 52-60

P9. Angle 21 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2

P10. Angle 0, for table indexing 64
Marking with aluminum.

P11. Re-dop pavilion side

P12. Adjust main facet opposite of crown main

P13. Angle 54 and indexing

Trainee will able to know:

K1. Know the procedure of Portuguese cut



	64-32 , 16-48, 8-40, 24-56,4-12, 20-28, 36-44, 52-60 P14.Angle 58 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P15. Angle 85 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P16. Angle 49 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P17.Angle 47 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P18. Angle 43 and indexing 64-32 , 16-48, 8-40, 24-56,4-12, 20-28, 36-44, 52-60 P19. Angle 39 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2	
D13. Perform scissors cut	<i>Trainee will be able to</i> P1. Arrange polishing material as per requirement P2. Cut girdle first angle 90 Indexing 96-48, 24-72 P3. Angle 42 and Indexing 96-48, 24-72 P4. Angle 34 and Indexing 96-+2, 48-+2, 24-+2, 72-+2 P5. Angle 20 and Indexing 96-48 P6. Angle 23 and Indexing 24-72	<i>Trainee will be able to know:</i> K1. Know the procedure of Scissors cut

	P7. Angle 36 and Indexing 12-36, 60-84 P8. Angle 90 and Indexing 12-36, 60-84 P9. Angle 0, for table indexing 64 Marking with aluminum. P10. Re-dop pavilion side P11. Adjust main facet opposite of crown main P12. Angle 45 and Indexing 96-+1, 48-+1 P13. Angle 43 and Indexing 96-48 P14. Angle 48 and Indexing 12-36, 60-84 P15. Angle 47 and Indexing 24-72 P16. Angle 53 and Indexing 18-30, 66-78 P17. Angle 29 and Indexing 24-72	
D14. Perform brilliant oval cut	Trainee will be able to P1. Arrange polishing material as per requirement P2. Shape the stone as per requirement P3. Angle 42 Indexing 64-32 P4. Angle 35 and Indexing 16-48	Trainee will be able to know: K1. Know the procedure of brilliant oval cut

	P5. Angle 41 and Indexing 6-26, 38-58 Star facet P6. Angle 27 and Indexing 64-+3, 32-+3 (adjustable)Girdle facet P7. Angle 45-52 and Indexing 64 -+2, -+4, 32-+2, -+4, P8. Angle 41-42(adjustable) indexing 16-+2, 48-+2 P9. Angle 45 and Indexing 8,24,40,56 P10. Angle 0, for table indexing 64 Marking with aluminum. P11. Re-dop pavilion side P12. Adjust main facet opposite of crown main P13. Angle 43 and Indexing 64-32 P14. Angle 37 and Indexing 16-48 P15. Angle 42 and Indexing 6,26,38,58 P16. Girdle facet and 45-52 (adjustable) Indexing 64-+2, -+4 32-+2, -+4, P17. Angle 41-42(adjustable) Indexing 16-+2, 48-+2 P18. Angle 45-46(adjustable) Indexing 8,24,40,56	
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Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Perform round brilliant cut.
- Perform vertical modified main faceting
- Perform horizontal modified cut
- Perform step cut
- Perform French star cut
- Perform double star cut
- Perform Mitchell six rays star cut(96 index)
- Perform Mitchell five rays star cut(80 index)
- Perform Jubilee cut
- Perform brilliant bead cut
- Perform double diamond horizontal cut
- Perform Portuguese cut
- Perform scissors cut
- Perform brilliant oval cut

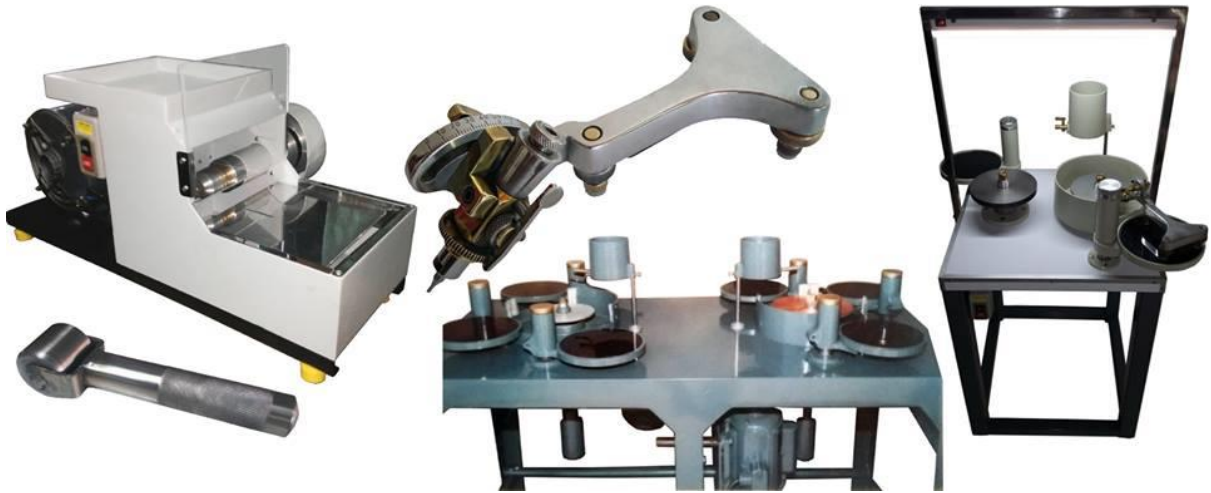
Tools and equipment required

- Faceting unit
- Facetor
- Doped stone fixed in facetor
- Laps (180, 600 and 1000)
- Master lap
- L-Keys
- Table lamp





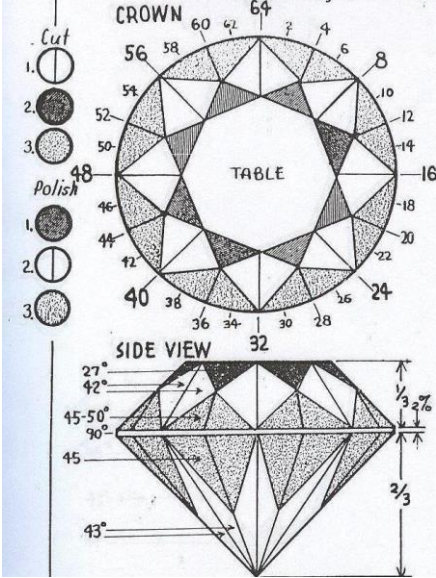
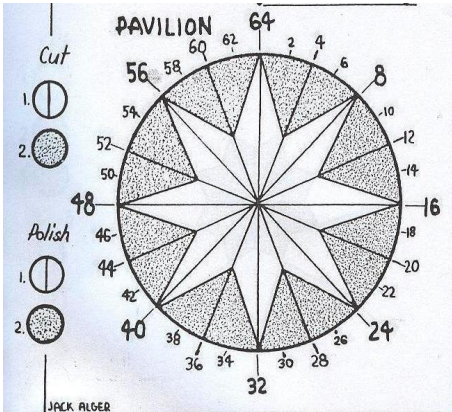
- Water supply

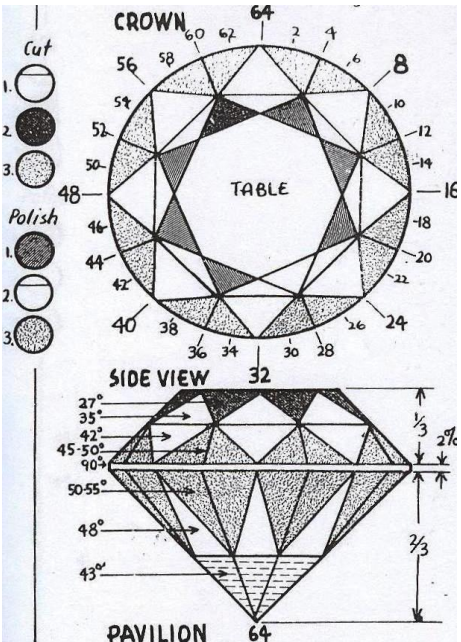
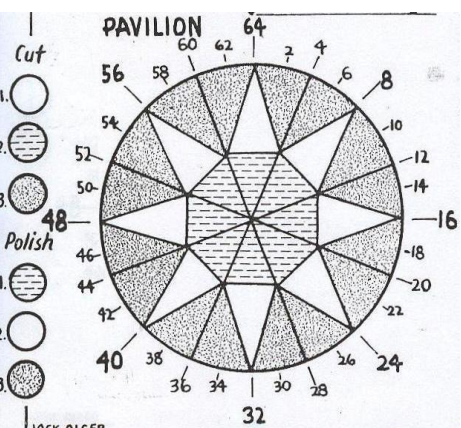


Competency Standard E: Perform Gemstone Polishing

Overview: This competency standard covers the skills and knowledge required to carry out polishing on already faceted gemstones using various tools and machines.

Competency Units	Performance Criteria	Knowledge & understanding
D1:Perform polishing for round cut	Trainee will be able to: P1.Arrange polishing material as per requirement P2. Polish main facet P3. Angle 42 indexing 64-32 , 16-48, 8-40, 24-56 P4.Star facet Angle 27, indexing 4-12-20-28-36-44-52-60, P5.Girdle facet angle 44 to 51, (adjustable), indexing 8-2+-2, 16+-2, 24+-2, 32+-2, 40+-2, 48+-2, 56+-2, 64+-2, P6.Angle 0, for table indexing 64 P7.Marking with aluminum 64 index. P8.Re-dop pavilion side P9.Adjust main facet opposite of crown main facet P10.Angle 43, index 64-32 , 16-48, 8-40, 24-56	Trainee will able to know: K1. Know the procedure of polishing for round cut K2. Knowledge about polishing abrasive and combination of different polishing laps(Lead, Tin, Plastic, Copper)

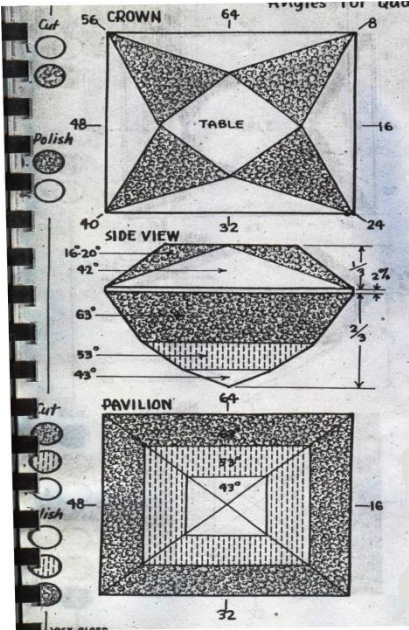
	P11.Girdle facet angle 44 to 51, (adjustable), indexing 8-2+-2, 16+-2, 24+-2, 32+-2, 40+-2, 48+-2, 56+-2, 64+-2,	
D2:Perform polishing of vertical modified main faceting  	Trainee will be able to: P1. Arrange polishing material as per requirement P2. Polish main facet P3. Angle 42 indexing 64-32 , 16-48, 8-40, 24-56 P4.Modified vertical angle 42 indexing 8-+1, 16-+1, 24-+1, 32-+1, 40-+1, 48-+1, 56-+1, 64-+1 P5.Star facet Angle 27, indexing 4-12-20-28-36-44-52-60, P6.Girdle facet angle 44 to 51, (adjustable), indexing 8-2+-2, 16+-2, 24+-2, 32+-2, 40+-2, 48+-2, 56+-2, 64+-2, P7.Angle 0, for table indexing 64 P8.Marking with aluminum 64 index. P9.Re-dop pavilion side P10.Angle 43, index 64-32 , 16-48, 8-40, 24-56 P11.Modified main facet in pavilion angle 43 indexing 8-+1,	Trainee will able to know: K1. Know the procedure of polishing for vertical modified main faceting

	16-+1, 24-+1, 32-+1, 40-+1, 48-+1, 56-+1, 64-+1	
D3:Perform polishing for horizontal modified cut   JACK ALGER	Trainee will be able to: P1. Arrange polishing material as per requirement P2. Polish main facet P3. Angle 42 indexing 64-32 , 16-48, 8-40, 24-56 P4.Modified horizontal angle 35 64-32 , 16-48, 8-40, 24-56 P5.Star facet Angle 27, indexing 4-12-20-28-36-44-52-60, P6.Girdle facet angle 44 to 51, (adjustable), indexing 8-2+-2, 16+-2, 24+-2, 32+-2, 40+-2, 48+-2, 56+-2, 64+-2 P7.Angle 0, for table indexing 64 P8.Marking with aluminum 64 index. P9.Re-dop pavilion side P10.Adjust main facet opposite of crown main facet P11.Angle 43, index 64-32 , 16-48, 8-40, 24-56 P12.Modified horizontal cut	Trainee will able to know: K1. Know the polishing of horizontal modified cut



	P13.Angle 49, index 64-32 , 16-48, 8-40, 24-56 P14.Girdle facet angle 51 to 55, (adjustable), indexing 8-2+-2, 16+-2, 24+-2, 32+-2, 40+-2, 48+-2, 56+-2, 64+-2,	
D4: Perform polishing for step cut The diagram illustrates the step cut process for a rectangular gemstone. It includes three views: Crown, Table, and Pavilion. The Crown view shows a rectangular facet with dimensions 64 (length), 16 (width), and 8 (height). The Table view shows a rectangular facet with dimensions 64 (length), 16 (width), and 8 (height). The Side View shows the profile of the gemstone with dimensions 40 (length), 32 (width), and 24 (height). The Pavilion view shows the bottom of the gemstone with dimensions 64 (length), 16 (width), and 8 (height). The diagram also includes a legend for 'Cut' and 'Polish' with three levels of shading.	Trainee will be able to: P1. Arrange polishing material as per requirement P2. Polish main facet P3.Angle 42 indexing 64-32 , 16-48, 8-40, 24-56 P4.Star facet angle 27 Indexing 64-32 , 16-48, 8-40, 24-56 P5.Angle 0 and Indexing 64, P6.Re-dop pavilion side P7.Adjust main facet opposite of crown main facet P8.Angle 63, index 64-32 , 16-48, 8-40, 24-56 P9.Angle 53, index 64-32 , 16-48, 8-40, 24-56 P10.Angle 43, index 64-32 , 16-48	Trainee will able to know: K1. Know the procedure of step cut



D5: Perform polishing for French star cut 	Trainee will be able to: P1. Arrange polishing material as per requirement P2. Polish main facet P3. Angle 42 indexing 64-32 , 16-48 P4. Star facet angle 16-20(adjustable) Indexing 8-24, 40-56 P5. Angle 0, for table indexing 64 Re-dop pavilion side P6. Adjust main facet opposite of crown main facet P7. Angle 63 indexing 64-32 , 16-48 P8. Angle 53 indexing 64-32 , 16-48 P9. Angle 43 indexing 64-32 , 16-48	Trainee will be able to know: K1. Know the procedure of star cut
D6: Perform polishing for double star cut	Trainee will be able to: P1. Arrange polishing material as per requirement P2. Polish main facet P3. Angle 42 indexing 64-32 , 16-48 P4. Star facet angle 24 to 28, (adjustable), indexing	Trainee will be able to know: K1. Know the procedure of double star cut



	8-2+-2, 24+-2, 40+-2, 56+-2 P5. Angle 0, for table indexing 64 P6. Marking with aluminum. P7. Re-dop pavilion side P8. Adjust main facet opposite of crown main P9. Angle 63, index 64-32 , 16-48, 8-40, 24-56 P10. Angle 53, index 64-32 , 16-48, 8-40, 24-56 P11. Angle 43, index 64-32 , 16-48	
D7: Perform polishing for Mitchell six rays star cut(96 index)	Trainee will be able to: P1. Arrange polishing material as per requirement P2. Polish main facet P3. Angle 42 indexing 64-32 , 16-48 P4. star facet angle 35 (adjustable) P5. indexing 4-12,20-28, 36-44, 52-64, 68-76, 84-92 P6. Angle 0, for table indexing 96 Marking with aluminum. P7. Re-dop pavilion side	Trainee will able to know: K1. Know the procedure of polishing for Mitchell six rays star cut(96 index)

	P8. Adjust main facet opposite of crown main Angle 37, P9. indexing 4-12,20-28, 36-44, 52-64, 68-76, 84-92	
D8: Perform polishing for Mitchell five rays star cut(80 index)	Trainee will be able to: P1. Arrange polishing material as per requirement P2. 5 facets at 42 degree 80, 16,32,48,64 P3. Ten facet indexing 4-12, 20-28, 36-44, 52-60, 68-76 P4. Angle 0, for table indexing 80 Marking with aluminum. P5. Re-dop pavilion side	Trainee will able to know: K1.Know the procedure of Mitchell five rays star cut(80 index)

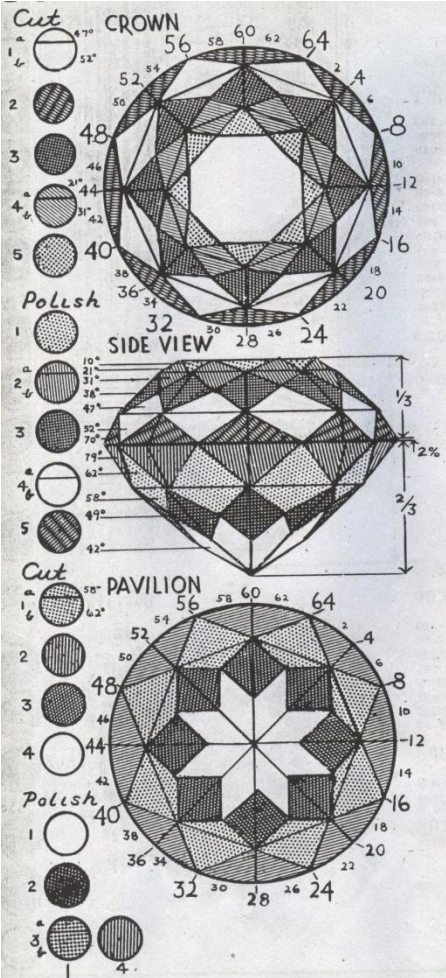


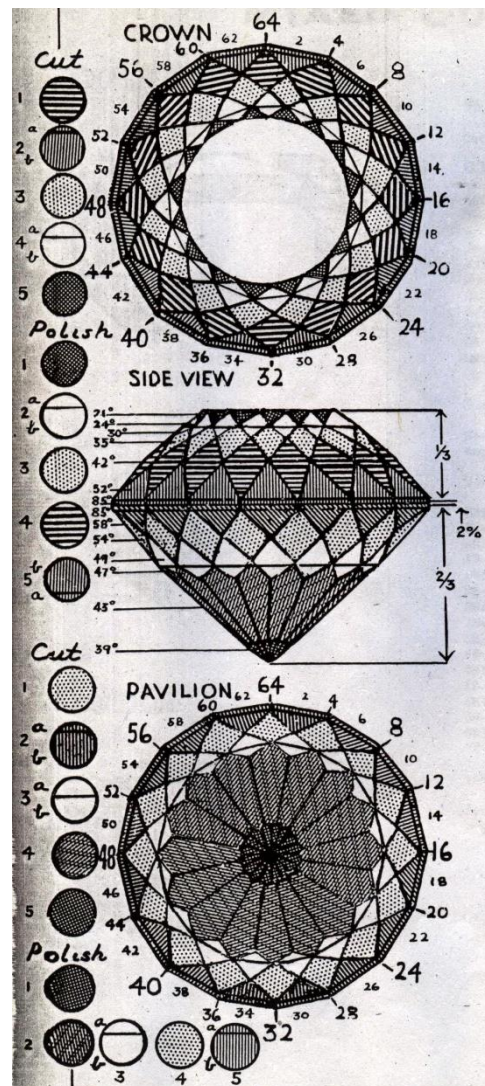
	P6. Adjust main facet opposite of crown main angle 43 Indexing 80, 16-64, 32-48	
D9: Perform polishing for Jubilee cut	Trainee will be able to: P1. Arrange polishing material as per requirement P2. Angle 22, indexing 64-32, 16-48, 8-40, 24-56 P3. angle 32, indexing 4-12, 20-28, 36-44, 52-60 P4. Angle 43, Indexing 8-+1, 16-+1, 24-+1, 32-+1, 40-+1, 48-+1, 56-+1, 64-+1 P5. Angle 47, Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P6. indexing 96	Trainee will able to know: K1. Know the procedure of polishing for Jubilee cut



	P7. Marking with aluminum. P8. Re-dop pavilion side P9. Adjust main facet opposite of crown main P10. Angle 49, Indexing 64-32 , 16-48, 8-40, 24-56 P11. Angle 39, Indexing 64-32 , 16-48, 8-40, 24-56 P12. Angle 48, Indexing 4-12 , 20-28, 36-44, 52-60 P13. Angle 54 Indexing 8-2+-2, 16+-2, 24+-2, 32+-2, 40+-2, 48+-2, 56+-2, 64+-2,	
D10: Perform polishing for brilliant bead cut	Trainee will be able to: P1. Polish girdle facet angle 90 P2. Angle 30 and indexing 64-32 , 16-48, 8-40, 24-56, 4-12, 20-28, 36-44, 52-60 P3. Angle 45 Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P4. Angle 60 and indexing 64-32 , 16-48, 8-40, 24-56, 4-12, 20-28, 36-44, 52-60 P5. Angle 75 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P6. Angle 0, for table	Trainee will able to know: K1. Know the procedure of polishing for brilliant bead cut

	indexing 64 Marking with aluminum. P7. Re-dop pavilion side P8. Adjust main facet opposite of crown main P9. Angle 75 and indexing 64-32 , 16-48, 8-40, 24-56, 4-12, 20-28, 36-44, 52-60 P10. Angle 60 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P11. Angle 45 and indexing 64-32 , 16-48, 8-40, 24-56, 4-12, 20-28, 36-44, 52-60 P12. Angle 30 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P13. Angle 0, for table indexing 64	
D11. Perform polishing for double diamond horizontal cut	<i>Trainee will be able to</i> P1. Cut girdle first angle 90 P2. Angle 52 and indexing 64-32 , 16-48, 8-40, 24-56 P3. Angle 70 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P4. Angle 38 and Indexing 8-+2, 16-+2, 24-+2, 32-+2,	<i>Trainee will able to know:</i> K1. Know the procedure of polishing for double diamond horizontal cut

	40-+2, 48-+2, 56-+2, 64-+2 P5. Angle 31 and indexing 64-32 , 16-48, 8-40, 24-56 P6. Angle 21 and indexing 64-32 , 16-48, 8-40, 24-56 P7. Angle 10 and Indexing 4-12, 20-28, 36-44, 52-60 P8. Angle 0, for table indexing 64 Marking with aluminum. P9. Re-dop pavilion side P10. Adjust main facet opposite of crown main angle 62 and indexing 64-32 , 16-48, 8-40, 24-56 P11. Angle 58 and indexing 64-32 , 16-48, 8-40, 24-56 P12. Angle 79 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P13. Angle 49 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P14. Angle 42 and indexing 64-32 , 16-48, 8-40, 24-56	
D12. Perform polishing for Portuguese cut	Trainee will be able to P1. Arrange polishing material as per requirement	Trainee will able to know: K1. Know the procedure of polishing for



P2. Angle 42 and indexing 64-32 , 16-48, 8-40, 24-56, 4-12, 20-28, 36-44, 52-60

P3. Angle 52 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2

P4. Angle 85 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2

P5. Angle 35 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2

P6. Angle 30 and indexing 64-32 , 16-48, 8-40, 24-56, 4-12, 20-28, 36-44, 52-60

P7. Angle 24 and indexing 64-32 , 16-48, 8-40, 24-56, 4-12, 20-28, 36-44, 52-60

P8. Angle 21 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2

P9. Angle 0, for table indexing 64
Marking with aluminum.

P10. Re-dop pavilion side

P11. Adjust main facet opposite of crown main

P12. Angle 54 and indexing 64-32 , 16-48, 8-40, 24-56, 4-12, 20-28, 36-44, 52-60

Portuguese cut



	P13.Angle 58 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P14. Angle 85 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P15. Angle 49 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P16.Angle 47 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2 P17. Angle 43 and indexing 64-32 , 16-48, 8-40, 24-56,4-12, 20-28, 36-44, 52-60 P18. Angle 39 and Indexing 8-+2, 16-+2, 24-+2, 32-+2, 40-+2, 48-+2, 56-+2, 64-+2	
D13. Perform polishing for scissors cut	<i>Trainee will be able to</i> P1. Arrange polishing material as per requirement P2. Angle 42 and Indexing 96-48, 24-72 P3. Angle 34 and Indexing 96-+2, 48-+2, 24-+2, 72-+2 P4. Angle 20 and Indexing 96-48 P5. Angle 23 and Indexing 24-72	<i>Trainee will be able to know:</i> K1. Know the procedure of Scissors cut

	P6. Angle 36 and Indexing 12-36, 60-84 P7. Angle 0, for table indexing 64 Marking with aluminum. P8. Re-dop pavilion side P9. Adjust main facet opposite of crown main P10. Angle 45 and Indexing 96-+1, 48-+1 P11. Angle 43 and Indexing 96-48 P12. Angle 48 and Indexing 12-36, 60-84 P13. Angle 47 and Indexing 24-72 P14. Angle 53 and Indexing 18-30, 66-78 P15. Angle 29 and Indexing 24-72	
D14. Perform Polishing brilliant oval cut	<i>Trainee will be able to</i> P1. Arrange polishing material as per requirement P2. Shape the stone as per requirement P3. Angle 42 Indexing 64-32 P4. Angle 35 and Indexing 16-48 P5. Angle 41 and Indexing	<i>Trainee will able to know:</i> K1. Know the procedure of brilliant oval cut

The diagram illustrates the facets of a star facet cut diamond. The top view shows a circular crown with facets numbered 1 through 64. The side view shows the pavilion with facets numbered 1 through 42. Angles are indicated for various facets, such as 42°, 36°, 41°, 38°, 44.5°, and 41°.	6-26, 38-58 Star facet P6. Angle 27 and Indexing 64-+3, 32-+3 (adjustable) Girdle facet P7. Angle 45-52 and Indexing 64 -+2, -+4, 32-+2, -+4, P8. Angle 41-42(adjustable) indexing 16-+2, 48-+2 P9. Angle 45 and Indexing 8,24,40,56 P10. Angle 0, for table indexing 64 Marking with aluminum. P11. Re-dop pavilion side P12. Adjust main facet opposite of crown main P13. Angle 43 and Indexing 64-32 P14. Angle 37 and Indexing 16-48 P15. Angle 42 and Indexing 6,26,38,58 P16. Girdle facet and 45-52 (adjustable) Indexing 64-+2, -+4 32-+2, -+4, P17. Angle 41-42(adjustable) Indexing 16-+2, 48-+2 P18. Angle 45-46(adjustable) Indexing
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	8,24,40,56	
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Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Perform polishing on round brilliant cut.
- Perform polishing on vertical modified main faceting
- Perform polishing on horizontal modified cut
- Perform polishing on step cut
- Perform polishing on French star cut
- Perform polishing on double star cut
- Perform polishing on Mitchell six rays star cut(96 index)
- Perform polishing on Mitchell five rays star cut(80 index)
- Perform polishing on Jubilee cut
- Perform polishing on brilliant bead cut

Tools and equipment required

- Faceting unit
- Facetor
- Doped stone fixed in facetor
- Copper lap, Tin lap, lead lap, plastic lap
- Master lap
- L-Keys
- Table lamp
- Water supply
- Dop sticks (Round, V-Shaped and Plate)
- Sprite lamp and sprit
- Doping Wax
- Aluminum pencil for marking



- Diamond powder
- Chrome oxide, cerium oxide, aluminum oxide
- Olive oil