No. 1157 **24 November *2006***

SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

In accordance with regulation 24(c) of the Regulations of 28 March 1998, the Standards Generating Body (SGB) for

Mining and Minerals

registered by Organising Field 06, Manufacturing, Engineering and Technology, publishes the following qualification and unit standards for public comment.

This notice contains the titles, fields, subfields, **NQF** levels, credits, and purpose of the qualification and unit standard. The qualification and unit standard can be accessed via the **SAQA** web-site at **www.saqa.org.za**. Copies may also be obtained from the Directorate of Standards Setting and Development at the **SAQA** offices, **SAQA** House, 1067 Arcadia Street, Hatfield, Pretoria,

Comment on the qualification and unit standards should reach **SAQA** at the address ***below and no later than 23 December 2006.*** **All** correspondence should be marked **Standards Setting – SGB for Mining and Minerals** and addressed to

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Attention: Mr. D. Mphuthing
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SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:

Further Education and Training Certificate: Jewellery Designing

SAQA QUAL ID	QUALIFICATION TITLE		
57875	Further Education and Training Certificate: Jewellery Designing		
SGB NAME		**ORGANISING FIELD ID**	**PROVIDER NAME**
SGB Mining and Minerals		6	
QUAL TYPE		**ORGANISING FIELD DESCRIPTION**	**SUBFIELD**
Further Ed and Training Cert		Manufacturing, Engineering and Technology	Fabrication and Extraction
ABET BAND	**MINIMUM CREDITS**	**NQF LEVEL**	**QUALIFICATION CLASS**
Undefined	146	Level	Regular-Unit Stds Based

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

This qualification will enable qualifying learners with the necessary knowledge, understanding and competence in jewellery design. Learners credited with this qualification are able to design Jewelleryutilising advanced jewellery technology.

The ability of the industry to develop its potential in the beneficiation of raw materials is dependent upon the development of these skills to provide the platform for expansion and to have a base of skilled workers for further development. The Jewellery Manufacturing Industry relies on competent jewellery manufacturers and setters, who in turn rely on jewellery designers to provide them with fashionable and practical designs.

Learners credited with this qualification are able to:

> Communicate and solve problems within a jewellery design environment.
> Comply with workplace practices regarding Occupational Health and Safety.
> Draw and design jewellery using various design processes and techniques.
> Identify and grade a gemstone for buying and selling purposes in the jewellery market.

Rationale:

Jewellery designers, manufacturers and setters work closely together to create, produce and market jewellery. For this reason, the South African Jewellery Manufacturing Industry has identified Jewellery Design as a critical skill. Rapid technological development has necessitated the need for high level skilled jewellery designers in South Africa.

As 80% of commercial jewellery in South Africa is imported there are great opportunities for the the Jewellery Manufacturing Industry in South Africa to design and manufacturejewellery for the South African market and abroad. The competitive jewellery market requires products that follow and set fashion trends, are of a high quality and are well marketed.

Currently there is a shortage of well rounded jewellery designers that can meet the industry needs and grow the South African jewellery market. This qualification will produce more skilled designers who, in conjunction with jewellery manufacturers and setters, will contribute to developing the South African jewellery market by producing quality products which can compete locally and in the global market. This qualification will increase the technical proficiency and size of the workforce; which would then enable industry to satisfy the local demands for jewellery without having to rely on imports, thereby decreasing the importation of cheap jewellery which is a threat to the Industry.

The majority of the learners entering this qualification are likely to be working in the jewellery industry as

diamond and gemstone setters or jewellery manufacturing operators.

The benefits of achieving a recognised qualification may also draw those already working as Jewellery designers formally or informally and who will benefit from the opportunities of assessment and subsequent recognition presented by RPL. (Recognition of Prior Learning).

In some cases learners may come from other industries, however they would have to become familiar with the basic operations associated with Jewellery design before they can proceed with this qualification.

A typical learning pathway for learners with this qualification would be the GETC: Mining and Minerals Processes (Jewellery stream), National Certificate: Minerals Processing, NQF Level 2, National Certificate: General Draughting, NQF Level 3. Learners can then progress onto the National Certificate: Jewellery Production Management, NQF Level **5.**

Qualifying learners will be appointed as jewellery designers working in conjunction with other jewellery manufacturing operators under the guidance of an experienced mentor. This qualification provides the learner with the knowledge of and skills in jewellery design and techniques necessary for the design of jewellery: The elective unit standards provide the learner with knowledge in diamond and gemstone setting and jewellery manufacture, which could provide a basis for further specialisation in those areas.

Jewellery design is based on information from the Goldsmith in terms of the design specifications. The designer will guide the Goldsmith in terms of the combination of stones and setting lay out, metals and other precious materials. This qualification will provide learners with the knowledge and skills necessary for jewellery design.

RECOGNIZE PREVIOUS LEARNING?

Y

LEARNING ASSUMED TO BE IN PLACE

> Communication and Mathematical Literacy at NQF Level 3.

Recognition of Prior Learning:

This qualification can be achieved wholly or in part through recognition of prior learning in terms of the criteria laid *out.*

Evidence can be presented in a variety of forms, including international or previous local qualifications, reports, testimonials mentioning functions performed, work records, portfolios, videos of practice and performance records.

Access to the qualification:

Access is open; however it is preferable that learners have completed the National Certificate: General Draughting, NQF Level 3.

QUALIFICATION RULES

Fundamental
> All 56 credits must be achieved.

Core
> All *80* credits must be achieved.

Electives
> 10 credits may be selected from the list of elective unit standards to make up a minimum of **146** credits for **the** qualification.

EXIT LEVEL OUTCOMES

1. Communicate and solve problems in the jewellery design process.
2. Adhere to the Occupational Health and Safety requirements.
3. Identify and grade a gemstone for buying and selling within the jewellery industry.
4. Draw and design jewellery using various design processes and techniques.

Consistency of Exit Level Outcomes with Critical Cross field Outcomes:

In accordance with **SAQA** guidelines, all unit standards include the assessment of relevant critical cross-field outcomes. Consequently, Exit Level Outcomes are consistent with critical cross-field outcome requirements.

The following CCFO's have been addressed in this qualification as per the unit standards outlined.

SAQA Critical Cross-Field Outcomes; Equivalent Exit Level Outcome

> Identifying and solving problems in which responses display that responsible decisions using critical thinking have been made; Equivalent Exit Level Outcome's 1, 2, 3, 4.
> Working effectively with others as a member of a team, group, organization and community; Equivalent Exit Level Outcome's 1; 2, 3, 4.
> Organising and managing oneself and one's activities responsibly and effectively; Equivalent Exit Level Outcome's 1, 2, 3.
> Collecting, analyzing, organizing and critically evaluating information; Equivalent Exit Level Outcome's 1, 2, 3.
> Communicating effectively using visual, mathematical and/or language skills; Equivalent Exit Level Outcome's 3, 4.
> Using science and technology effectively and critically, showing responsibility toward the environment and health of others; Equivalent Exit Level Outcome's 3, 4.
> Demonstrating an understanding of the world as a set of related systems by recognizing that problem contexts do not exist in isolation; Equivalent Exit Level Outcome's 3, 4.

ASSOCIATED ASSESSMENT CRITERIA

1

> Oral communication skills is maintained and adapted as required to promote effective interaction in the setting of diamonds and gemstones.
> Written communication is conducted at an appropriate level for designated target audiences.
> Read and interpret the design in accordance with the design specifications.

Range: The design refers to but not limited to:

> Drawing.
> Photograph.
> Model.

2.

> Occupational health and safety requirements are adhered to at all times within the jewellery designing environment.
> Hazardous conditions are identified and reported in accordance with specified requirements.

3.

> The process for identifying gemstones for the utilisation in the jewellery industry is explained in accordance with specified requirements.
> Gemstones are evaluated using grading techniques in accordance with industry standards.
> Grading techniques are applied in the processing of gemstones in accordance with the specified industry requirements.
> Tools and equipment used to identify and grade gemstones in accordance with gemstone processing regulations.

4

> The process of jewellery design is explained in accordance with specified requirements.
> Jewellery is designed in accordance with design specifications.

Range: The design refers to but not limited to:

> Drawing.
> Photograph
> Model.

> Jewellery design techniques are applied in the design process in accordance with the design

specifications.
> Tools and equipment are used to design the jewellery in accordance with manufacturer's specifications.

Integrated Assessment:

Integrated assessment at the level of the qualification provides an opportunity for learners to show they are able to integrate concepts, actions and ideas achieved across a range of unit standards and contexts.

Integrated assessment must evaluate the quality of observable performance as well as the thinking behind the performance, and must be based on a summative assessment guide. The guide will spell out how the assessor will assess different aspects of the performance and will include:

> Observing the learner while designing and manufacturing of jewellery: (This includes gem setting and interaction with clients, colleagues and management).
> Asking questions regarding the processes underlying a wide range of activities such as:

> Jewellery manufacture.
> Gem setting.
> Design and.
> Gemmology.

and initiating short discussions to test understanding of

> House keeping.
> Productivity.

> Looking at the design/s or photos in lieu thereof, records such as employment history and references, progress reports and statement of competency, other evidence in the portfolio and reviewing previous assessments.

In some cases inference will be necessary to determine competence depending on the nature and context within which performance takes place, particularly when looking at the jewellery design, to see whether the requirements have been met.

The design of jewellery entails:

> Applied Numeracy.

> The rendering of technical drawings to specified requirements.
> Calculate the costing of materials.

> Applied communication.
> Liaising with the clients and key people in the design process.

> Problem solving.

> Combining techniques, materials and processes to design innovative variations of jewellery.
> Design standard forms of jewellery using unique and innovative processes, techniques and tools.
> Troubleshooting.
> Improving productivity.

It is necessary to ensure that the fundamental part of the qualification is also targeted to ensure that while the competence may have been achieved in a particular context, learners are able to apply it in a range of other contexts and for further learning. The assessment should also ensure that all the critical cross-field outcomes have been achieved.

The learner may choose in which language s/he wants to be assessed. This should be established as part of a process of preparing the learner for assessment and familiarising the learner with the approach being taken.

While this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit-level outcomes, The assessment process should cover both the explicit tasks required for the qualification as well as the understanding of the concepts and principles that underpin the activities associated with the jewellery design process.

INTERNATIONAL COMPARABILITY

A search was conducted for possible courses and/or qualifications existing in countries that are considered world leaders in jewellery design and manufacture as well as countries on the African continent.

The structures found in other countries do not necessarily match the South African design of separate qualifications for design, manufacturing and setting
respectively. For that reason the research has been reflected collectively as it is relevant to the respective qualifications proposed.

Courses and qualifications were analysed from a number of countries:

> America (one of the strongest economies in the world and a recognised producer of jewellery).
> India (a growing economy which will soon be one of the strongest in the world, and widely recognised for the proficiency of the jewellery industry).
> Hong Kong (a strong economy which is strongly export oriented).
> Thailand (well renowned for its jewellery industry).

International skills programmes, qualifications and other training interventions were investigated to ensure that the proposed FETC qualification structure and unit standards are comparable in terms of level, scope of qualification and competencies covered. The qualifications and/or programmes were selected based on proven best practice within the field of the Jewellery Design.

Hong Kong: (http://www.vtc.edu.hk/prospectus/eng/course.php?action_type=detail&course_id=200)

> Craft Certificate in Jewellery.

Course Aims:

The course is designed to train and to provide qualified personnel for Jewellery industry. It emphasizes theoretical and practical knowledge in order to train up fully competent students *to* meet the employers' needs. The course covers the fundamental concept of design in relation to Jewellery making in Hong Kong. It provides students with the basic knowledge of modem Jewellery making, the elements of Jewellery craft and Jewellery design.

Course outlines:

> Jewellery Making.
> Jewellery and Technical Drawing.
> Materials and Processes.
> Computer Fundamentals in Jewellery.
> Materials and Science.
> Jewellery Illustration, Computer Application in Jewellery.
> Design Studies.
> Computer Aided Design in Jewellery.
> Introduction To Gemmology.
> Technical Communications.

This is a 3 year course offered by the Vocational Training Council. The outcomes and scope of competencies covered in the certificate compare favourably with the proposed FETC qualification; however no judgement could be made on the level of the certificate.

> School for art and Technical Education in Jewellery - Hong Kong.

Certificate in Jewellery Design.
> (http://www.satej.com/Jeweller/courses.htm#Top).

This is four-month short-term course is introduced for people who want to pursue conventional jewellery designing. At the end of the course, the students are able to -

> Design jewellery on paper using the most advanced rendering techniques.
> Understand conventional jewellery manufacturing processes.

Some key roles and competencies were found in the module - design jewellery on paper using the most advanced rendering techniques: however no judgement could be made on the level and depth of the outcomes.

America: (http://www.jdti.com/jdtil11.htm)
> Certificate Programme in Jewellery Designing.

Learners will learn how to communicate a design idea through different presentation techniques, understand the evolution of jewellery and the present day market needs. Discover the fire of diamonds and the charm of coloured stones. The course also offers an opportunity to design your own collections.

Programme contents:

> Drawing Skills.
> Colour Science.
> Form & Space.
> Jewellery through the ages.
> Know the Gems (diamonds, precious & semiprecious stones).
> Technical Drawing.
> Rendering Techniques.
> Design Methodology.
> Understanding Jewellery Markets - Domestic & International.
> Jewellery Forecast.
> Design Project - I (Craft Based).
> Design Project - II (Technique Based).
> Design Project - III (Jewellery Based).
> Study of Jewellery Manufacturing Techniques.

Outcomes or competencies identified in the above Certificate is generally quite comparable to the South African qualification in terms of range of competencies covered. The certificate course is full time over six months and there are separate courses available on gemstone identification and grading.

Thailand: Gemmological Institute of America (GIA) Thailand

> (http://www.git.or.th/eng/eng_sen/ices/eng_training_center/eng_designing_course.htm#).
> (http://www.gia.edu/education/31732/jewelry_manufacturing_arts_program_descriptions.cfm).

> Jewellery Design Course (Advanced Level).

Course content:

> Emphasis on more complex design drawing.
> Dsigning for gem and jewelry industry.
> Practice in using markers instead of water color.
> Price calculation and designing to meet the objectives of usage.
> Improved understanding about matching colors with designs in appropriate and efficient manner.

> Applied Jewellery Arts Diploma Program. The curriculum covers:

> Learn to illustrate shape, form, and texture of metal.
> Learn leading-edge 3-D technology to design jewellery using CAD (computer aided design) software.
> Create a wide variety of designs in wax.
> Use your own designs to make complete models for casting and mold making.
> Explore the art of vulcanized rubber and R.T.V. (room temperature vulcanizing) mold making and cutting techniques.
> Learn the art of cutting a mold.

Similar competencies were found and the outcomes of the programmes match closely with the outcomes of the unit standards covered in this FETC.

India: (http://www.ensign.in/learningsolution/?pageurl=Certificate%20Programmes)

> Certificate Programme in Basic Jewellery Designing offered by the Jewellery Design and Technology Institute.

Course Outline:

> Visualization & Representation.
> Technical Drawing Geometry.
> Introduction to Color.

> Rendering Techniques.
> Visual Studies.
> Design Methodology.
> Design Process and Prototyping in Paper.
> Knowledge of Gem.
> Lecture & demonstration of basic Jewellery making techniques.
> Personality Development.
> Self Grooming.
> Diction.
> Photography.
> Final Design Project.

This course *is* offered on a 3 month full time basis. The content covered in this course is similar to the outcomes and competencies within this FETC but at a much lower level.

> Art and Design Institute offer courses in Art and design institute - affiliated to Bangalore University. Govt of Karnataka.

Jewellery Designing Part 1:

> Introduction.
> Media Research, Elements & Principles of Design, Colours & Texture.
> Elements & Applications of technical drawing.
> Drawing front & side views of rings, bracelets, pendants & necklace, drawing stone cuts, colouring metals, studded jewellery.
> Project Work: Portfolio (Basic compilation without CAD designs).

Gemology:

> Introduction.
> Basic qualities of a gem, methods employed in gem mining.
> Physical properties, optical properties & optical effects in gem stones.
> Theory of gem cutting techniques, crystallography and applications in Gemology.
> Instruments in Gem Identification - techniques, limitations & precautions.
> Synthetic, composites, imitation gem stones & plastics, treatment of gemstones.
> Systematic identification of gemstone groups, individual stones & their simulants.

Diamond Grading and Identification:

> introduction.
> Uniqueness of diamond among gems.
> Theory of journey of diamond from the mines to cutter, theory of cutting & polishing process.
> Study of round brilliant cut, basics of polished diamond grading, grading using international standards, history of cuts.
> 4 C'S: Grading for Colour, Clarity, Cut, and Carat.
> Identification of diamond & diamond simulants.

Jewellery Designing Part II:

> Jewellery History, Ancient World, Byzantium age, Renaissance, Art Nouveau, Art Deco and Contemporary.
> Corel Draw, Computer Aided Designing using Precious CAD - learning the basic functions, moving from simple 3-D modelling to Jewellery Designing.
> Creative usage of stones with special properties in jewellery, exposure to types of gems, colour variations, importance of gemstones, durability in jewellery. Jewellery & gemstones care:
> Market study of Jewellery houses - Indian - South, North, East & West & International.
> Project work: Portfolio (Advanced compilation with CAD designs).

Rough Diamond Assortment

> Theory: Sorting of diamonds in the rough stage, central sorting office, sizes & melee.
> Planning, marking, cleaving, sawing, polishing, sorting bench, Formula for valuation.
> Practical: Sorting for size, quality, purity & colour.

Similar competencies were found and the outcomes of the courses offered here match closely with the outcomes and key competencies of the unit standards in draw and design, the historical development of

jewellery, using 3D computer programmes to produce 3D drawings and Grade and Identify gemstones covered in this FETC.

Summary:

The FETC Jewellery Design Technology compares favourably with the relevant components of a wide selection of international qualifications, programmes, courses identified above. Where outcomes or competencies were identified within the international qualifications, programmes or courses, they are generally quite comparable to the South African qualification in terms of competencies covered.

It is believed that this qualification will render a useful contribution to developing competent jewellery designers who can help the South African jewellery industry become globally competitive.

ARTICULATION OPTIONS

This qualification allows for both vertical and horizontal articulation.

Vertical articulation exists with:

> National Certificate: Jewellery Production Management NQF Level 5
A relevant qualification is still in the design phase.

Horizontal articulation exists with:

> FETC: Jewellery Manufacturing Operations NQF Level 4, NLRD ID: 57876.
> FETC: Jewellery Setting Processes NQF Level 4.
> FETC: Computer Aided Drawing Office Practice NQF Level 4, NLRD ID: 50018

MODERATION OPTIONS

> Anyone assessing a learner or moderating the assessment of a learner against the qualification must be registered as an assessor with the relevant Education, Training, Quality, Assurance (ETQA) Body, or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.

> Any institution offering learning that will enable the achievement of this qualification must be accredited as a provider with the relevant Education, Training, Quality, Assurance (ETQA) Body, or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.

> Assessment and moderation of assessment will be overseen by the relevant Education, Training, Quality, Assurance (ETQA) Body, or by an ETQA that has a Memorandum of Understanding with the relevant ETQA, according to the ETQA's policies and guidelines for assessment and moderation.

> Moderation must include both internal and external moderation of assessments, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described in the associated unit standards.

> Anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors should be in possession of:

> An appropriate qualification at level 5 or higher, and preferably relevant workplace practical experience.
> Registration as an assessor with the relevant ETQA.

NOTES

N/A

UNIT STANDARDS
(Note: A blank space after this line means that the qualification is not based on Unit Standards.)

	UNIT STANDARD ID AND TITLE	LEVEL	CREDITS	STATUS
core	9647 Draw and design jewellery	Level 3	15	Reregistered
core	9650 Demonstrate appropriate product knowledge to enable working in a jewellery environment	Level 3	11	Reregistered

core	**243002** Use a 3D computer programme as a design- tool to produce drawings to specifications	Level 5	12	Draft - Prep for P Comment
core	**243005** Describe and understand metallurgical principles for jewellery manufacture	Level 5	12	Draft - Prep for P Comment
/core	**243006** Grade a gemstone	Level 5	8	Draft - Prep for P Comment
Core	**243007** Demonstrate an understanding of the historical developments of jewellery	Level 5	12	Draft - Prep for P Comment
core	**243008** Identify a gemstone	Level 5	10	Draft - Prep for P Comment
Elective	**9648** Manufacture jewellery for single faceted stone settings	Level 3	21	Reregistered
Elective	**15264** Make and use repousse and chasing punches	Level 3	20	Registered
Elective	**15278** Produce a mould of a piece of jewellery or related artefact for reproduction	Level 3	10	Registered
Elective	**243000** Manufacture jewellery	Level 3	7	Draft - Prep for P Comment
Elective	**9638** Set stones in multiple claw or wire settings	Level 4	15	Reregistered
Elective	**9642** Set faceted stones in multiple tube settings	Level 4	15	Reregistered
Elective	**9643** Set faceted stones in channel settings	Level 4	18	Reregistered
Elective	**9644** Tension set a sinlge faceted stone	Level 4	2	Reregistered
Elective	**9645** Flush-set faceted stones	Level 4	15	Reregistered
Elective	**15268** Forge metal to manufacture jewellery	Level 4	21	Registered
Elective	**243001** Pave: and star-set faceted stones	Level 4	15	Draft - Prep for P Comment
Elective	**243003** Manufacture and repair complicated jewellery	Level 4	23	Draft - Prep for P Comment
Fundamental	**119457** Interpret and use information from texts	Level 3	5	Registered
Fundamental	**119465** Write/present/sign texts for a range of communicative contexts	Level 3	5	Registered
Fundamental	**119467** Use language and communication in occupational learning pmgrammes	Level 3	5	Registered
Fundamental	**119472** Accommodate audience and context needs in oral/signed communication	Level 3	5	Registered
Fundamental	**7468** Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	Level 4	6	Reregistered
Fundamental	**9015** Apply knowledge of statistics and probability to critically interrogate and effectively communicate findings on life related problems	Level 4	6	Reregistered
Fundamental	**12417** Measure, estimate & calculate physical quantities & explore, critique & prove geometrical relationships in 2 and 3 dimensional apace in the life and workplace of adult with increasing responsibilities	Level 4	4	Reregistered
Fundamental	**119459** Write/present/sign for a wide range of contexts	Level 4	5	Registered
Fundamental	**119462** Engage in sustained oral/signed communication and evaluate spoken/signed texts	Level 4	5	Registered
Fundamental	**119469** Read/view, analyse and respond to a variety of texts	Level 4	5	Registered
Fundamental	**119471** Use language and communication in occupational learning programmes	Level 4	5	Registered

SAQA

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:

Further Education and Training Certificate: Jewellery Manufacturing Operations

SAQA QUAL ID	QUALIFICATION TITLE		
57876	Further Education and Training Certificate: Jewellery Manufacturing Operations		
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Mining and Minerals		6	
QUAL TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD
Further Ed and Training Cert		Manufacturing, Engineering and Technology	Fabrication and Extraction
ABET BAND	MINIMUM CREDITS	NQF LEVEL	QUALIFICATION CLASS
Undefined	150	Level 4	Regular-Unit Stds Based

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

This qualification will enable qualifying learners with the necessary knowledge, understanding and competence to conduct the operations associated with the manufacture of jewellery. It will include working with metals in jewellery manufacture and knowledge of the non-specialised areas like design and stone setting. Learners credited with this qualification are able to manufacture jewellery utilising advanced jewellery technology.

The ability of the industry to develop its potential in the beneficiation of raw materials is dependent upon the development of these skills to provide the platform for expansion and to have a base of skilled workers for further development.

Learners credited with this qualification are able to:

> Communicate and solve problems within a jewellery manufacturing environment.
> Prepare materials for the manufacturing of jewellery.
> Comply with workplace practices regarding Occupational Health and Safety.
> Manufacture jewellery using various manufacturing processes and techniques.

Rationale:

The Jewellery Manufacturing Industry has identified Jewellery Manufacturing as a critical skill. 80% of commercial jewellery in South Africa is imported. Rapid technological development has necessitated the need for the manufacturing of high quality jewellery in South Africa. Production software and hardware is commercially available which has brought about a critical need in the industry to convert experienced operators into qualified jewellery manufacturers.

Currently there is a shortage of well-rounded goldsmiths that can manufacture for the South African jewellery market. This qualification will produce more skilled goldsmiths raising the quality standard, enabling strong links to be forged with industry thus making industry more competitive in the global market. This qualification will increase the technical proficiency and size of the workforce; which would then enable industry to satisfy the local demands for jewellery without having to rely on imports, thereby decreasing the importation of cheap jewellery which is a threat to the Industry.

The majority of the learners entering this qualification are likely to be Gemstone setters, Jewellery designers and those working in the Jewellery manufacturing industry as operators. In some cases learners may come from other industries, however they would have to become familiar with the basic operations associated with Jewellery manufacturing before they can proceed with this qualification.

Current Jewellery Manufacturing operators in particular will benefit from the opportunities of assessment and subsequent recognition presented by RPL (Recognition of Prior Learning).

A typical learning pathway for learners with this qualification would be the GETC: Mining and Minerals Processes (Jewellery stream), National Certificate: Minerals Processing, NQF Level 2, National Certificate: Jewellery Manufacture, NQF Level 3. Learners can then progress onto the National Certificate: Jewellery Production Management, NQF Level 5.

Qualifying learners will be appointed as Goldsmiths under the guidance of a Senior Goldsmith in a Jewellery Manufacturing environment. Qualifying learners will become more employable to those jewellery companies that manufacture more exclusive jewellery.

Goldsmithing is based on information from the client/and or designer specifications. The goldsmith will guide the client/and or designer in terms of manufacturing techniques, combination of stones, and other precious materials. This qualification will provide learners with the knowledge and skills in jewellery manufacturing processes and techniques necessary for the manufacture of jewellery. The elective unit standards provide the learner with knowledge and skills in setting and design which could provide a basis for further specialisation into those areas.

RECOGNIZE PREVIOUS LEARNING?

Y

LEARNING ASSUMED TO BE IN PLACE

Communication and Mathematical Literacy at NQF Level 3.

Recognition of Prior Learning:

This qualification can be achieved wholly or in part through recognition of prior learning in terms of the criteria laid out in the Integrated assessment.

Evidence can be presented in a variety of forms, including international or previous local qualifications, reports, testimonials mentioning functions performed, work records, portfolios, videos of practice and performance records.

Access to the qualification:

Access is open; however it **is** preferable that learners have completed the National Certificate: Jewellery Manufacturing, NQF Level 3.

QUALIFICATION RULES

Fundamental:

> All 56 credits must be achieved.

Core:

> All **84** credits must be achieved.

Electives:

> I 0 credits may be selected from the list of Elective unit standards to make up a minimum of 150 credits for the qualification.

EXIT LEVEL OUTCOMES

1. Communicate and solve problems regarding the manufacturing process of Jewellery.

2. Adhere to the Occupational Health and Safety requirements.

3. Prepare materials for the manufacturing of jewellery.

4. Manufacture and repair jewellery.

Consistency of Exit Level Outcomes with Critical Cross-Field Outcomes:

In accordance with SAQA guidelines, all unit standards include the assessment of relevant Critical Cross-Field Outcomes. Consequently, Exit Level Outcomes are consistent with critical cross-field outcome requirements.

The following CCFO's have been addressed in this qualification as per the unit standards outlined in the Annexures.

SAQA Critical Cross-Field Outcomes:

> Identifying and solving problems in which responses display that responsible decisions using critical thinking have been made.
> Equivalent Exit Level Outcomes: 1, **2,** 3, 4.

> Working effectively with others as a member of a team, group, organization and community.
> Equivalent Exit Level Outcomes: 1, 2, 3, 4.

> Organising and managing oneself and one's activities responsibly and effectively.
> Equivalent Exit Level Outcomes: 1, **2,** 3.

> Collecting, analysing, organizing and critically evaluating information.
> Equivalent Exit Level Outcomes: 1, 2.

> Communicating effectively using visual, mathematical and/or language skills.
> Equivalent Exit Level Outcomes: 1, 3, **4.**

> Using Science and technology effectively and critically, showing responsibility toward the environment and health of others.
> Equivalent Exit Level Outcomes: 2, 3, 4.

> Demonstrating an understanding of the world as a set of related systems by recognizing that problem contexts do not exist in isolation.
> Equivalent Exit Level Outcomes: 3, **4.**

ASSOCIATED ASSESSMENT CRITERIA

1:
> Oral communication skills is maintained and adapted as required to promote effective interaction in the manufacturing process of jewellery.
> Written communication is conducted at an appropriate level for designated target audiences.
> Mathematical principles and techniques needed in the jewellery manufacturing process are explained and applied in accordance with specified requirements.

2:
> Occupational health and safety requirements are explained and applied within the jewellery manufacturing environment.
> Hazardous conditions are identified and reported in accordance with specified requirements.

3:
> The integrity and characteristics of the metals to be used must comply in accordance with industry practice.
> Tools, materials and equipment are selected in accordance with the job specifications.
> Materials are weighed and calculated according to job requirements.

4:
> Jewellery manufacturing principles are explained and applied with in accordance with specified requirements.
> Read and interpret the design in accordance with client and/or designers specifications.
> Range: The design refers to **but** not limited to:
> Drawing.
> Photograph.
> Model.
> Tools and equipment are used to manufacture the jewellery in accordance with specifications.
> Jewellery manufacture and repair techniques are applied in the manufacturing process in accordance with specified requirements.
> Jewellery **is** manufactured in accordance with design specifications.
> Range: The design refers to but not limited to:

> Drawing.
> Photograph.
> Model.

Integrated assessment:

Integrated assessment at the level of the qualification provides an opportunity for learners to show they are able to integrate concepts, actions and ideas achieved across a range of unit standards and contexts.

Integrated assessment must evaluate the quality of observable performance as well as the thinking behind the performance, and must be based on a summative assessment guide. The guide will spell out how the assessor will assess different aspects of the performance and will include:

> Observing the learner while manufacturing jewellery. This includes:
> Gem setting.
> Design and interaction with clients, colleagues and management.

> Asking questions regarding the processes underlying a wide range of activities such as:
> Jewellery manufacture.
> Gem setting.
> Design.
> Gemmology.

> Initiating short discussions to test understanding of:
> House keeping.
> Productivity.

> Looking at the objects and artefacts that were manufactured or photos in lieu thereof, records such as employment history and references, progress reports and statement of competency, other evidence in the portfolio and reviewing previous assessments.

In some cases inference will be necessary to determine competence depending on the nature and context within which performance takes place, particularly when looking at the manufactured items of jewellery to see whether the requirements have been met.

The manufacture of the jewellery entails:

> Applied Numeracy:
> Manufacture components to specified dimensions.
> Weigh and calculate alloys and other components.

> Applied Communication:
> Liasing with the clients and key people in the production process.

> Problem Solving:
> Combining techniques, materials and processes to produce innovative variations of jewellery.
> Produce standard forms of jewellery using unique and innovative processes, techniques and tools.
> Troubleshooting.
> Improving productivity.

The fundamental part of the qualification may be applied in a range of other contexts and for further learning. The assessment should also ensure that all the Critical Cross-Field Outcomes have been achieved.

The learner may choose in which language s/he wants to be assessed. This should be established as part of a process of preparing the learner for assessment and familiarising the learner with the approach being taken.

While this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the Exit-Level Outcomes.

INTERNATIONAL COMPARABILITY

International qualifications were compared to ensure that the qualification structure and unit standards are comparable in terms of level, scope of qualification and competencies covered. Qualifications and/or programmes from Hong Kong, Australia, Thailand, India and Ireland were selected based on proven best

practice within the field of Jewellery Manufacturing Operations.

The findings regarding comparisons within each country are as follows:

1. Hong Kong:

(http://w.vtc.edu.hk/prospectus/eng/course.php?action_type=detail&course_id=200)

> Technician Foundation Certificate in Jewellery Design and Manufacturing offered by the Vocational Training Council.

Curriculum covers:

Vocational English & Communication Skills, Jewellery Design, Jewellery Illustration, Basic Materials, Practical Computer Application, Professional Goldsmithing, Lost Wax Casting.

The structure of the certificate is similar, however no judgement could be made on the level but it seems to be at a slightly lower level than this FETC Jewellery Manufacturing Operations as only a few elements of competence were found that would compare favourably with the proposed qualification.

> School for art and Technical Education in Jewellery - Hong Kong: Certificate In Jewellery Design - (http://www.satej.com/Jeweller/courseshtm#Top):

This is four-month short-term course is introduced for people who want to pursue conventional jewellery designing. At the end of the course, the students are able to:

> Design jewellery on paper using the most advanced rendering techniques.
> Understand conventional jewellery manufacturing processes.

Some key roles and competencies were found in the module - understand conventional jewellery manufacturing processes however no judgement could be made on the level and depth of the outcomes.

2. Australia:
(apprenticeship.det.nsw.edu.au/docs/training/MEM98.pdf)
(wwwfp.opcet.tas.gov.au/trapeze/reports/VocationalPathway/Funded_Path_History.htm)

The FETC Jewellery Manufacturing Operations matches very closely in terms of qualification purpose, structure, entry level, credits and outcomes with the Certificate III in Jewellery Manufacture apprenticeship; offered by the Department of Education and Training, Australia. Favourable comparisons were found in terms of the outcomes for Occupational Health and Safety, Organising and analysing information, operate in a work based team environment, measure with graduated device, perform computer operations, Operate and monitor machine/process, perform gemstone setting, handle and examine gemstone materials, produce rubber moulds for lost wax casting process and perform hand engraving.

Outcomes or competencies identified in the Certificate III in Jewellery Manufacture are generally quite comparable to the South African qualification in terms of levels and range of competencies covered. Both provide a firm foundation for further study at the higher levels. This apprenticeship is also offered in Tasmania.

3. Thailand:
Gemmological Institute of America (GIA) Thailand:
(http://w.giathailand.com/)
(http://www.gia.edu/education/31732/jewelry_manufacturing_arts_program_descriptions.cfm)

Programmes offered include Graduate Jeweller Diploma and Applied Jewellery Arts Diploma Program. The curriculum covers:

> Learn to illustrate shape, form, and texture of metal.
> Learn leading-edge 3-D technology to design jewellery using CAD (computer aided design) software.
> Create a wide variety of designs in wax.
> Use your own designs to make complete models for casting and mould making.
> Explore the art of vulcanised rubber and R.T.V. (Room Temperature Vulcanising) mould making and cutting techniques.
> Learn the art of cutting a mould.
> Work with metals including how to melt, pour, roll, form, and solder.
> Learn how to file, pierce, and polish metal.

> Learn to perform the most common repair requests, including sizing rings, repairing chains, replacing earring posts, and resetting stones.
> Use laser welding technology to manufacture or repair jewellery - and reduce your production time.
> Learn the basics of working with gemstones.
> Learn how to set stones by working with a variety of mounting styles, settings, and fancy shape stones.

Similar competencies were found and the outcomes of the programmes match closely with the outcomes of the unit standards covered in this FETC.

4. India:
(http://www.ensign.in/learningsolution/?pageurl=Certificate%20Programmes)

> Certificate Programme in Custom made Jewellery Manufacturing offered by the Jewellery Design and Technology Institute.

Programme outline:

> Basic metallurgy and Alloying.
> Use of hand tools and workshop machinery.
> Basic goldsmith and jewellery making skills.
> Technical exercise in jewellery manufacturing.
> Wax Modelling.
> Casting technology (complete cycle of casting and extensive practical training).
> Practical aspects of polishing and finishing.
> Electroplating.
> Stone setting.
> Enamelling and Engraving.
> Stamping and Coining.
> Jewellery repair techniques.
> Maintenance of jewellery equipment and machinery.
> Environment pollution and safety measures..
> Final project in manufacturing.

Here again, the content covered in this programme is very similar to the outcomes and competencies within this FETC, however the two are different in terms of structure.

> Art and Design Institute offer courses in:

> Jewellery Manufacturing Part I:
> Properties of metals, alloys, terminologies in manufacturing.
> Tools used in Jewellery manufacturing, utility & limitations of important tools.
> Cutting and bending, pattern and texture, fusing and soldering, cold joining, finishing, patinas, stone setting, mechanism & chains.

> Jewellery Manufacturing Part II:
> Making earrings, chains, pendants.

Similar competencies were found and the outcomes of the courses offered here match closely with the outcomes of the unit standards and key competencies covered in this FETC.

5. Ireland:

(http://www.fas.ie/couframe.htm)

> Jewellery Manufacturing Operative Traineeship.

Course description:

This course has been designed in order to provide trained personnel for the jewellery industry. The aim of the course is to develop the skills and related knowledge in all aspects of jewellery production.

Modules:

> Career planning and job seeking skills.
> Casting.
> Forming/filing/polishing.

> Induction.
> Sawing & piercing.
> Soldering.

The course compares favourable in terms of purpose, similar competencies match, however no judgement could be made on the entry level. Similar competencies were found that compare favourable to this FETC in terms of casting, soldering, stone setting, forming/filing/polishing as well as sawing and piercing.

Summary:

The FETC Jewellery Manufacturing Operations compares favourable with a wide selection of international qualifications, programmes, courses identified above. Where outcomes or competencies were identified within the international qualifications, programmes or courses, they are generally quite comparable to the South African qualification in terms of competencies covered.

ARTICULATION OPTIONS

This qualification allows for both vertical and horizontal articulation.

Vertical articulation exists with:

> National Certificate: Jewellery Production Management NQF Level *5* (still in the design phase).

Horizontal articulation exists with:

> Further Education and Training Certificate: Jewellery Setting Processes, NQF Level **4** (still in the design phase).
> *57875:* Further Education and Training Certificate: Jewellery Designing, NQF Level **4.**

MODERATION OPTIONS

> Anyone assessing a learner or moderating the assessment of a learner against the qualification must be registered as an assessor with the relevant Education, Training, Quality, Assurance (ETQA) Body, or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.

> Any institution offering learning that will enable the achievement of this qualification must be accredited as a provider with the relevant Education, Training, Quality, Assurance (ETQA) Body, or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.

> Assessment and moderation of assessment will be overseen by the relevant Education, Training, Quality, Assurance (ETQA) Body, or by an ETQA that has a Memorandum of Understanding with the relevant ETQA, according to the ETQAs policies and guidelines for assessment and moderation.

> Moderation must include both internal and external moderation of assessments, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described in the associated unit standards.

> Anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors should be in possession of:

> An appropriate qualification at or above the level of the qualification and preferably relevant workplace practical experience.
> Registration as an assessor with the relevant ETQA.

NOTES

N/A

UNIT STANDARDS
(Note: A blank space after this line means that the qualification is not based on Unit Standards.)

	UNIT STANDARD ID AND TITLE	LEVEL	CREDITS	STATUS
Core	9648 Manufacture jewellery for single faceted stone settings	Level 3	21	Reregistered

core	243000	Manufacture jewellery	Level 3	7	Draft - Prep for P Comment
core	15268	Forge metal to manufacture jewellery	Level 4	21	Registered
core	243003	Manufacture and repair complicated jewellery	Level 4	23	Draft - Prep for P Comment
	243005	Describe and understand metallurgical principles for jewellery manufacture	Level 5	12	Draft - Prep for P
Elective	9647	Draw and design jewellery	Level 3	15	Reregistered
Elective	15264	Make and use repousse and chasing punches	Level 3	20	Registered
Elective	15278	Produce a mould of a piece of jewellery or related artefact for reproduction	Level 3	10	Registered
Elective	9638	Set stones in multiple daw or wire settings	Level 4	15	Reregistered
Elective	9642	Set faceted stones in multiple tube settings	Level 4	15	Reregistered
Elective	9643	Set faceted stones in channel settings	Level 4	18	Rereqistered
Elective	9644	Tension set a sinlge faceted stone	Level 4	2	Reregistered
Elective	9645	Flush-set faceted stones	Level 4	15	Reregistered
Elective	243001	Pave- and star-set faceted stones	Level 4	15	Draft - Prep for P Comment
Elective	243004	Mass produce jewellery using lost wax casting techniques	Level 4	20	Draft - Prep for P Comment
Elective	243002	Use a 3D computer programme as a design-tool to produce drawings to specifications	Level 5	12	Draft - Prep for P Comment
Elective	243006	Grade a gemstone	Level 5	8	Draft - Prep for P Comment
Elective	243007	Demonstrate an understanding of the historical developments of jewellery	Level 5	12	Draft - Prep for P Comment
Elective	243008	Identify a gemstone	Level 5	10	Draft - Prep for P Comment
Fundamental	119457	Interpret and use information from texts	Level 3	5	Registered
Fundamental	119465	Write/present/sign texts for a range of communicative contexts	Level 3	5	Registered
Fundamental	119467	Use language and communication in occupational learning programmes	Level 3	5	Registered
Fundamental	119472	Accommodate audience and context needs in orallsigned communication	Level 3	5	Registered
Fundamental	7468	Use mathematics to Investigate and monitor the financial aspects of personal, business, national and International issues	Level 4	6	Reregistered
Fundamental	9015	Apply knowledge of statistics and probability to critically interrogate and effectively communicate findings on life related problems	Level 4	6	Reregistered
Fundamental	12417	Measure, estimate & calculate physical quantities & explore, critique & prove geometrical relationships in 2 and 3 dimensional space in the life and workplace of adult with increasing responsibilities	Level 4	4	Reregistered
Fundamental	119459	Write/present/sign for a wide range of contexts	Level 4	5	Registered
Fundamental	119462	Engage in sustained orallsigned communication and evaluate spoken/signed texts	Level 4	5	Registered
Fundamental	119469	Read/view, analyse and respond to a variety of texts	Level 4	5	Registered
Fundamental	119471	Use language and communication in occupational learning programmes	Level 4	5	Registered

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 1

Manufacturejewellery

SAQA US ID	*UNIT STANDARD TITLE*
243000	Manufacturejewellery

SGB NAME	*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Mining and Minerals	*6*	

UNIT STANDARD TYPE	*ORGANISING FIELD DESCRIPTION*	*SUBFIELD .DESCRIPTION*
Regular	Manufacturing, Engineering and Technology	Fabrication and Extraction

ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	*7*	Level *3*	Regular

SPECIFIC OUTCOME 1

Prepare the metal for manufacture.

SPECIFIC OUTCOME 2

Manufacture components for a piece of jewellery and assemble the components using heat.

SPECIFIC OUTCOME 3

Finish the completed piece of jewellery.

SPECIFIC OUTCOME 4

Cast jewellery.

SAQA

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: **2**

Pave- and star-set faceted stones

SAQA US ID	***UNIT STANDARD TITLE***		
243001			
SGB NAME		***ORGANISING FIELD ID***	***PROVIDER NAME***
SGB Mining and Minerals		6	
UNIT STANDARD TYPE		***ORGANISING FIELD DESCRIPTION***	***SUBFIELD DESCRIPTION***
Regular		Manufacturing, Engineering and Technology	Fabrication and Extraction
ABET BAND	***CREDITS***	***NQF LEVEL***	***UNIT STANDARD TYPE***
Undefined	15	Level 4	Regular

SPECIFIC OUTCOME 1

Prepare to pave-set faceted stones.

SPECIFIC OUTCOME 2

Prepare to star- set faceted stones.

SPECIFIC OUTCOME 3

Pave- and star- set stones.

SPECIFIC OUTCOME 4

Execute the specified finish.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 3

Use a 3D computer programme as a design- tool to produce drawings to specifications

SAQA US ID	*UNIT STANDARD TITLE*		
243002	Use a 3D computer programme as a design- tool to produce drawings to specifications		
SGB NAME		*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Mining and Minerals		6	
UNIT STANDARD TYPE		*ORGANISING FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Fabrication and Extraction
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	12	Level 5	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the CAD user interface features and the modelling environment.

SPECIFIC OUTCOME 2

Demonstrate an understanding of commands and procedures in order to develop a basic graphic object.

SPECIFIC OUTCOME 3

Demonstrate an understanding *of* commands and procedures to develop basic 3D models.

SPECIFIC OUTCOME 4

Demonstrate knowledge of file formats, model analysis and rendering.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: **4**

SAQA US ID	*UNIT STANDARD TITLE*		
243003	Manufacture and repair complicated jewellery		
SGB NAME		*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Mining and Minerals		***6***	
UNIT STANDARD TYPE		*ORGANISING FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Fabrication and Extraction
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	***23***	Level **4**	Regular

SPECIFIC OUTCOME 1

Plan the manufacturing process of complicated jewellery.

SPECIFIC OUTCOME 2

Plan the repair of complicated jewellery.

SPECIFIC OUTCOME 3

Prepare the components.

SPECIFIC OUTCOME **4**

Assemble prepared components.

SPECIFIC OUTCOME 5

Execute the finish.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: ***5***

SAQA US ID	***UNIT STANDARD TITLE***		
243004	Mass produce jewellery using lost wax casting techniques		
SGB NAME		***ORGANISING FIELD ID***	***PROVIDER NAME***
SGB Mining and Minerals		***6***	
UNIT STANDARD TYPE		***ORGANISING FIELD DESCRIPTION***	***SUBFIELD DESCRIPTION***
Regular		Manufacturing, Engineering and Technology	(Fabrication and Extraction
ABET BAND	***CREDITS***	***NQF LEVEL***	***UNIT STANDARD TYPE***
Undefined	***20***	Level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the relevant theory and its application during each stage of the lost-wax casting process.

SPECIFIC OUTCOME 2

Make rubber moulds from models.

SPECIFIC OUTCOME 3

Produce wax patterns for investment.

SPECIFIC OUTCOME 4

Invest and cast patterns in metal.

SPECIFIC OUTCOME 5

Remove and finish metal reproduction.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 6

Describe and understand metallurgical principles for jewellery manufacture

SAQA US ID	*UNIT STANDARD TITLE*
243005	Describe and understand metallurgical principles for jewellery manufacture

SGB NAME		*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Mining and Minerals		6	
UNIT STANDARD TYPE		*ORGANISING FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Engineering and Related Design
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	*12*	Level 5	Regular

SPECIFIC OUTCOME **1**

Understand and describe recrystalization after melting and annealing.

SPECIFIC OUTCOME 2

Understand and describe the physical and mechanical properties of cast and cold worked metal.

SPECIFIC OUTCOME 3

Understand and calculate precious metal alloys.

SPECIFIC OUTCOME **4**

Understand the theory and practice of rolling, hammering, fluxing, soldering and polishing.

SPECIFIC OUTCOME 5

Understand the causes and prevention of porosity.

SPECIFIC OUTCOME 6

Demonstrate knowledge of annealing, hardening and tempering of carbon steel.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 7

Grade a gemstone

SAQA US ID	*UNIT STANDARD TITLE*		
243006	Grade a gemstone		
SGB NAME		*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Mining and Minerals		6	
UNIT STANDARD TYPE		*ORGANISING FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Engineering and Related Design
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	*8*	Level *5*	Regular

SPECIFIC OUTCOME 1

Determine the weight of a loose gemstone.

SPECIFIC OUTCOME 2

Determine the quality of the colour of a gemstone.

SPECIFIC OUTCOME 3

Determine the clarity of a gemstone

SPECIFIC OUTCOME 4

Determine the quality of the cut of a gemstone.

SPECIFIC OUTCOME 5

Compile a grading report.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: ***8***

Demonstrate an understanding of the historical developments of jewellery

SAQA US ID	***UNIT STANDARD TITLE***
243007	Demonstrate an understanding of the historical developments of jewellery

SGB NAME		***ORGANISING FIELD ID***	***PROVIDER NAME***
SGB Mining and Minerals		***6***	
UNIT STANDARD TYPE		***ORGANISING FIELD DESCRIPTION***	***SUBFIELD DESCRIPTION***
Regular		Manufacturing, Engineering and Technology	Fabrication and Extraction
ABET BAND	***CREDITS***	***NQF LEVEL***	***UNIT STANDARD TYPE***
Undefined	**12**	Level ***5***	Regular

SPECIFIC OUTCOME **1**

Demonstrate an understanding of the historic development of the forms of jewellery as found in jewellery shops.

SPECIFIC OUTCOME **2**

Demonstrate an understanding of the development of the materials used in the manufacture of jewellery throughout history..

SPECIFIC OUTCOME **3**

Demonstrate an understanding of the development of the techniques used in the manufacture of jewellery throughout history.

SPECIFIC OUTCOME **4**

Demonstrate an understanding of the functions that jewellery has fulfilled throughout history.

SPECIFIC OUTCQME ***5***

Demonstrate an understanding of the way that the designs of jewellery items have evolved since prehistoric times.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

SAQA US ID	*UNIT STANDARD TITLE*		
243008	Identify a gemstone		
SGB NAME		*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Mining and Minerals		6	
UNIT STANDARD TYPE		*ORGANISING FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Fabrication and Extraction
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	10	Level 5	Regular

SPECIFIC OUTCOME 2

Determine the weight of a gemstone.

SPECIFIC OUTCOME 3

Determine the dimensions of a gemstone.

SPECIFIC OUTCOME 4

Determine the physical properties of a gemstone using gemmological instruments.

SPECIFIC OUTCOME 5

Determine the identity of a gemstone.