| SECTION A: | QUALIFICATION DETAILS | | | | | | | | | | | | | | | | | |
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| QUALIFICATION DEVELOPER (S) | Limkokwing University of Creative Technology | | | | | | | | | | | | | | | | | |
| TITLE | Certificate V in Product Design | | | | | | | | | | | | | | NCQF LEVEL | 5 | | |
| FIELD | Manufacturing, Engineering and Technology | | SUB-FIELD | Product Design | | | | | | | | | | | CREDIT VALUE | 132 | | |
| *New Qualification* | | ✓ | *Review of Existing Qualification* | | | | | | | | | | | | | | | |
| SUB-FRAMEWORK | *General Education* | | *TVET* | | ✓ | *Higher Education* | | | | | | | | | | | | |
| QUALIFICATION TYPE | *Certificate* | *I* | | *II* | | *III* | | *IV* | | *V* | ✓ | *Diploma* | | *Bachelor* | | | | |
| | *Bachelor Honours* | | *Post Graduate Certificate* | | | *Post Graduate Diploma* | | | | | | | | | | | | |
| | *Masters* | | *Doctorate/ PhD* | | | | | | | | | | | | | | | |

## RATIONALE AND PURPOSE OF THE QUALIFICATION

### 1.1 Rationale

The qualification is designed to mould an innovative generation of designers and manufacturers who would fit well into both the local and international markets. The continued growth of manufacturing industries and consumer product designs in the modern economy has sustained and shaped economies of many nations. It has created opportunities for graduates as professional manufacturers and designers in the manufacturing and Product Design industry.

Botswana's market like any other developing country is dominated by products which are from other countries, even small and simple products like toothpicks are also imported from nearby states. Lack of qualified and skilled product designers has also contributed to the reliance on imports and thereby increasing the import bill (Botswana Statistics February 2017). Botswana is blessed with indigenous knowledge which is not exploited. The knowledge is getting extinct as the focus is only on what other countries can offer us, rather than working on improving, innovating and exploiting Botswana's indigenous knowledge and products. There are

opportunities and enormous possibilities for the exploration of indigenous craft products for designers and crafts people in Botswana (Molokwane S & Moalosi R, 2010). But these opportunities are not taken up because of lack of relevant technical knowledge and skills. This has led to a situation where the few companies which are in the design and manufacturing industry only focus on assembling and fitting. The qualification focuses on the development of local skills and abilities in the development and communication of ideas in consumer products, three-dimensional design, product styling, materials and processing, ergonomics, the techniques of planning, processes and the production of prototypes and finished artefacts. The qucraftspeopleakes a technologically innovative approach to the design and creation of beautiful, original and functionally viable products.

The aspirations of this qualification are echoed in a report titled "2002 A frameworks for a long-term vision for Botswana "The importance of technical training must be stressed throughout the education system. A more difficult task is however to emphasize the importance of technical skills to the Economy, and to upgrade the status of those who are employed in technical jobs. This can only be done through constant emphasis and recognition of the economic contribution of technical skills both within government and outside," it is therefore clear that technical subjects or courses like this one would help and add value to the economy of Botswana.

The National Development Plan 11 of April 2017 – March 2023 under Diversified Industries, EDD *Strategy:* 6.136 states that efforts will continue to consolidate the EDD strategy's achievements during NDP 11 by implementing the new Industrial Development Policy (IDP), whose main aim is to achieve diversified and sustainable industries, while ensuring beneficiation of locally available raw materials. Measures will be put in place to ensure that goods and services produced in Botswana are of the quality and standard to compete in both local and international markets. Diversification and quality goods and services can only be realized if the country has qualified professionals.

The National Human Resources Development Strategy (NHRDS), through its strategic plan 2009-2022 (Ministry of Education and Skills Development, 2009) "Realizing our Potentials" provides the basis for matching skills with national labour market requirements and promoting individuals' potential to advance and contribute to economic and social development. This strategy reflects government realization that relevant knowledge and skills are essential requirements in moving Botswana's development trajectory forward. To increase citizen ownership of and participation in economic activities of the country is one of the cardinal objectives of Vision 2016 and 2036. The vision points to the need to create job opportunities through diversification of economy into the services sector and the manufacturing industry.

The qualification meets the growing need for graduates with a strategic vision of interdisciplinary product design and an understanding of all stages of the product lifecycle, who are ready to work in a variety of exciting careers related to consumer product development, furniture and more.

### 1.2 Purpose

The purpose of this qualification is to equip graduates with knowledge, skills and competences to:

- Apply creative and innovative process techniques in the design and manufacture of products for the industry.
- Demonstrate Knowledge on basic product design research using appropriate methodologies in the field.

- Produce a variety of products utilizing manufacturing techniques and processes.
- Produce Product design models from a wide range of materials for simulation and presentation to clients.
- Apply basic entrepreneurial tools and strategies to a product design business.
- Communicate ideas and concepts using written, oral, visual and digital presentations to industry and clients.

## 1.0. ENTRY REQUIREMENTS (including access and inclusion)

Access and inclusion measures have been created and considered in this qualification to allow fair and equal entry requirements for leaners from a wide spectrum of learning.

- NCQF level 3 (General Education or TVET) with Recognition of Prior Learning equivalent to at least 40 credits at NCQF level 4.

    - **CAT and RPL**

- CAT and RPL will be applicable for entry and inclusion for this qualification.
- Access through RPL will be done in accordance with the National RPL Policy.

| ***SECTION B*** | ***QUALIFICATION SPECIFICATION*** |
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| ***GRADUATE PROFILE (LEARNING OUTCOMES)*** | ***ASSESSMENT CRITERIA*** |
| | |
| 3.1 Demonstrate Knowledge on basic product design research using appropriate methodologies in the field. | 3.1.1 Identify product design problems in the field.<br>3.1.2 Design research tools for addressing field problems.<br>3.1.3 Select appropriate research tools for the identified problem.<br>3.1.4 Collect data using appropriate data collection methods.<br>3.1.5 Make product design recommendations based on research findings. |
| 3.2 Apply creative and innovative process techniques in the design and manufacture of products for the industry. | 3.2.1 Create innovative products for variety of clients' needs.<br>3.2.2 Interpret clients briefs to make products.<br>3.2.3 Develop product design specifications to meet clients' needs and preferences.<br>3.2.4 Draw concepts and sketches to address clients' briefs.<br>3.2.5 Enhance concepts for easier understanding by clients.<br>3.2.6 Translate product design visuals into technical drawings.<br>Use assistive product design softwares to make models and 3-dimensional drawings for presentation to clients. |
| 3.3 Produce Product design models from a wide range of materials for simulation and presentation to clients. | 3.3.1 Translate design drawings into models for easier understanding by clients and design teams<br>3.3.2 Select appropriate material necessary for prototyping in the industry.<br>3.3.3 Draw models in different scales.<br>3.3.4 Convert 2D drawings/pictorial drawings into a 3D prototype for product to be manufactured.<br>3.3.5 Assemble a 3D prototype into a semi-finished industry product.<br>3.3.6 Develop work stages and methods alongside product qualities.<br>Justify the optimum configurations for performance, reliability, cost, modes of behaviour under varying conditions, etc. |

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| 3.4 | Apply basic entrepreneurial tools and strategies to a product design business. | 3.4.1<br>3.4.2<br>3.4.3<br>3.4.4 | Generate business ideas & innovation using entrepreneurial skills and tools to individuals and companies.<br>Develop business plan for a product design business<br>Interpret financials of a product design business.<br>Communicate new business ideas based on knowledge of the new venture creation process to individual, teams and companies.<br>Present and defend the concept of their start up project to clients. |
| 3.5 | Demonstrate knowledge and skill on photographic equipment usage in image capturing events. | 3.5.1<br>3.5.2<br>3.5.3<br>3.5.4<br>3.5.5<br>3.5.6 | Operate a range of photographic technical equipment, including cameras, tripods and lenses.<br>Identify digital camera parts and their functions (i.e. viewfinder or LCD monitor, lens, mode dial, shutter button, etc.).<br>Select appropriate apertures adjustments, shutter speeds, and camera focus based on a combination of factors such as lighting, field depth, subject motion, film type and film speed when doing carrying photography industry project.<br>Select and assemble equipment and required background properties, according to subjects, materials and conditions.<br>Test equipment prior to use to ensure that it is in good working order.<br>Describe the features and specifications of different types of cameras to first buyers. |
| 3.6 | Produce a variety of products utilizing manufacturing techniques and process. | 3.6.1<br>3.6.2<br>3.6.3<br>3.6.4<br>3.6.5 | Design workflow of a manufacturing process to design teams and clients.<br>Measure and cut individual components parts for an assembly for a client.<br>Assemble parts to form a complete product as per client's brief.<br>Convert model into the actual materials.<br>Apply finishing to the completed item/product.<br>Justify the use of the selected manufacturing processes to clients and design teams. |
| 3.7 | Communicate ideas and concepts using written, oral, visual and digital presentations to industry and clients. | 3.7.1<br>3.7.2<br>3.7.3 | Identify appropriate visual presentation techniques for industry presentation.<br>Present a set of design solutions to a specific target audience.<br>Defend the integration of innovative ideas into design products. |

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| | 3.7.4 Justify the use of new materials and technologies in product design to clients.<br>3.7.5 Compile reports for ideas and concepts in written reports.<br>3.7.6 Use technology in communicating design ideas and concepts. |

| ***SECTION C*** | ***QUALIFICATION STRUCTURE*** | | | | |
|---|---|---|---|---|---|
| ***COMPONENT*** | ***TITLE*** | ***Credits Per Relevant NCQF Level*** | | | ***Total (Per** Subject/ Course/ Module/ Units)* |
| | | ***Level (4)*** | ***Level (5)*** | ***Level ( 6)*** | |
| ***FUNDAMENTAL COMPONENT*** *Subjects/ Courses/ Modules/Units* | Models and Prototypes | | 10 | | ***10*** |
| | Creative Studies | ***10*** | | | ***10*** |
| | Conceptual Development | | 10 | | ***10*** |
| | Design Studies | ***10*** | | | ***10*** |
| | Introduction to Computer Skills | | 10 | | ***10*** |
| | Contextual Research | | 10 | | ***10*** |
| ***CORE COMPONENT*** *Subjects/Courses/ Modules/Units* | Studio Project 1 | | 10 | | ***10*** |
| | Studio Project 2 | | 12 | | ***12*** |
| | Technical Drafting | | ***12*** | | ***12*** |
| | Computer Aided Design | | 10 | | ***10*** |
| | Workshop Technology | | 10 | | ***10*** |
| | Basic Entrepreneurship | | 10 | | ***10*** |
| | Presentation Techniques | | ***8*** | | ***8*** |

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|---|---|---|---|---|---|
| ***ELECTIVE/ OPTIONAL COMPONENT***<br>*Subjects/Courses/ Modules/Units* | Basic Digital Photography | | ***8*** | | ***8*** |
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| ***SUMMARY OF CREDIT DISTRIBUTION FOR EACH COMPONENT PER NCQF LEVEL*** | |
|---|---|
| ***TOTAL CREDITS PER NCQF LEVEL*** | |
| ***NCQF Level*** | ***Credit Value*** |
| Fundamental Component: Level 4<br>Fundamental Component: Level 5 | 20<br>40 |
| Core Component: Level 5 | 64 |
| Elective Components: Level 5 | 8 |
| TOTAL CREDITS | 132 |

***Rules of Combination:***

***(Please Indicate combinations for the different constituent components of the qualification)***

In order to successfully complete the qualification, the candidate must:

- Complete all fundamental component: 60Credits
- Complete all core component: 64 Credits
- Complete 1 Elective component: 8 Credits

The total credits combined for this qualification is **132.**

## *ASSESSMENT ARRANGEMENTS*

The qualification will encompass both formative and summative assessment, which will be designed by assessors who are BQA accredited.

**Formative assessments for practical modules** can include activities such as:

- Lab demonstrations.
- Lab exercises.

**And Formative assessments for theoretical modules** can include.

- Practice presentations.
- Peer/self-assessment.

The weightings for the assessments will be as follows;

| Assessment Method | Weight |
|---|---|
| Formative Assessments | 60 |
| Summative Assessments | 40 |

## *MODERATION ARRANGEMENTS*

There will be internal and external moderation undertaken by moderators registered and accredited by BQA. All processes and procedures will be in line with NCQF requirements. This will be conducted in reference to the institution's moderation policy and procedures.

## *RECOGNITION OF PRIOR LEARNING*

Prospective students who attained a qualification and awarded recognition by BQA registered institution shall be evaluated to determine its equivalence within the NQF through recorded interviews, inspection of transcript or oral and practical test to determine the level of qualification.

## *CREDIT ACCUMULATION AND TRANSFER*

The Qualification will be awarded through RPL and CAT in line with national policy on RPL as well as well-established ETP policy on recognition of prior learning and credit accumulation and transfer policy.

## *PROGRESSION PATHWAYS (LEARNING AND EMPLOYMENT)*

This qualification is designed to facilitate vertical, horizontal and diagonal progression both locally and internationally.

**Horizontal Progression**

Students may progress horizontally between qualifications if they meet the minimum requirements for admission to the target qualification. Other comparable qualification to this Certificate includes:

- Certificate in Design and Technology.
- Certificate in Furniture Design.

**Vertical progression – Exit**

Students graduated from this qualification may progress to the following:

- Diploma in Industrial Design.
- Diploma in Design and Technology.
- Diploma in Furniture Design.

**Diagonal Progression**

Students may progress diagonally between qualifications by presenting a completed Qualification or credits towards a qualification in a similar study area and must meet the minimum requirements for admission to the target qualification, which they will often do by virtue of the credits obtained towards an equivalent qualification.

**Employment Pathways**

Other than progressing academically students may get into the field and work as:

- Draftspersons (manual and computer aided design,2D & 3D).
- Design and Technology demonstrator.
- Workshop Technician & or assistant (metal, wood, plastic and other materials )..
- Maintenance technician in government and private buildings
- Research assistant (design and consumer analysis).
- Product designer.
- Furniture designer and manufacturer.
- Exhibition planner.
- Stall manager.
- Manufacturing designer.
- Graphic designer.
- Fabrication technician.

***QUALIFICATION AWARD AND CERTIFICATION***

To qualify for qualification award and certification, a learner must:

- Attain a minimum of 132 credits overall, including a maximum of 20 credits at Level 4.
- Complete satisfactorily any additional and specified requirements of the qualification.
- Have official verification that he/she has covered and passed all the modules

- A Certificate V in Product Design will be awarded on completion of the Qualification.

## *REGIONAL AND INTERNATIONAL COMPARABILITY*

Currently there is no institution that offers Certificate in Product Design in Botswana for benchmarking purposes. The only closest courses to Product Design, both in Botswana and other Southern African Countries are Carpentry and joinery, which are offered at most Brigades at trade, B, C and at NCC (National Craft Certificate) level, and these levels provide students with basic manufacturing skills, however these trades lack design aspect of the field.

**The qualification was compared with the following qualifications**

| Criteria | SGB Art, Craft & Design, SAQA (Republic of South Africa) | Conestoga polytechnic education, Ontario (USA) | LSDM (London School Design and Marketing (UK) |
|---|---|---|---|
| Title | Certificate: Design Techniques | Ontario College Certificate | Certificate in Design Innovation |
| Duration | 1 Year | 1 Year | 16 weeks |
| Credits | 120 | Not Available | Not Available |

**SIMILARITIES**

The following are noted similarities:

- The duration of training is the same; the key core modules taught in the qualifications are almost 100% similar.
- The number of modules offered for the qualification are 80% to 100% the same.
- CAT and RPL are applicable for entry and inclusion for all the comparable qualification.

**DIFFERENCES**

Key differences are noted in the following areas:

- The modules have different notional hours and hence credits for awarded to each module.
- Another difference is of names as most of them have different names but similar learning outcome.

**CONTEXTUALISED APPROACH**

- The Certificate is offered in a period of 1-year in-line with other qualifications of the same level.
- The certificate has widened its scope to enable graduating students to progress to other Design qualifications besides product design.

| ***REVIEW PERIOD*** |
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| Every five (5) years. |