QUALIFICATION SPECIFICATION							SECTION A
QUALIFICATION DEVELOPER	Limkokwing University of Creative Technology						
TITLE	Bachelor of Arts (honours) in Industrial Design			**NCQF LEVEL**		8	
FIELD	Manufacturing, Engineering and Technology			**SUB-FIELD**	Industrial Design		
NEW QUALIFICATION	√		REVIEW OF EXISTING QUALIFICATION				
SUB-FRAMEWORK	General Education		TVET		Higher Education	√	
QUALIFICATION TYPE	Certificate		Diploma		Bachelor		
	Bachelor Honours	√	Master		Doctor		
CREDIT VALUE					**122**		

1.0 RATIONALE AND PURPOSE OF THE QUALIFICATION

1.1 Rationale

Industrial Design is an experiential design service that deals with developing new styles and designs for a wide variety of products ranging from small handheld to large and complex machines. It starts with developing concepts and specifications that optimize the function, value, safety and appearance of products and systems for the mutual benefit of both user and manufacturer. It bridges the gap between what is and what's possible. It is a trans-disciplinary profession that harnesses creativity to resolve problems and co-create solutions with the intent of making a product, system, service, experience or a business, better. At its heart, Industrial Design provides a more optimistic way of looking at the future by reframing problems as opportunities. It links innovation, technology, research, business, and customers to provide new value and competitive advantage across economic, social, and environmental spheres.

The demand for industrial designers today is tremendous, because the design and technical industry is always developing new ways to communicate an idea, product, or service. With access to professional tools and software, this qualification is the most comprehensive qualification designed towards acquiring the necessary knowledge and developing the relevant research and design skills.

The Industrial design marketplace in Botswana is flooded with individuals who are practicing as Industrial Designers without formal tertiary education as the profession is relatively new. Formalizing training requirements will ensure that professional standards are maintained and that potential Industrial designers are well equipped with the necessary practical and theoretical knowledge they require for the industry.

The essence of this qualification is to provide graduates with a competitive edge in terms of their vocational practical expertise when applying for jobs or creating their own design businesses. Qualified students would be able to be employed by Industrial Design firms, government and various related industry role players. They can also open their own businesses in the Industrial Design industry; hence the qualification aims to develop responsible citizens, capable of leading independent and responsible lifestyles while contributing to economic growth and sustainability within Botswana and the world communities.

Consultations with industry identified a gap that exists in Botswana for competent industrial designer to work alongside senior professional industrial designers in the process of Industrial/product design or manufacturing. Thus, the qualification is aimed at closing the gap between the design stages (and the delivery of the finished art works to the clients).

The qualification aims to the develop student skills and ability to: Research, conceptualize, interact, develop product styles and apply the techniques of planning, processes and the production of prototypes and finished artifacts. The qualification takes a technologically innovative approach to the design and creation of beautiful, ingenious, functionally viable products. Industrial designers contribute and support the development of the manufacturing industry.

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 through improved Salaries and incentives", it is therefore clear that technical subjects or courses like this would help and add value to the economy of Botswana.

Research conducted by Motlhanka and Mapfaira (2010), Growing Manufacturing: Assessing Botswana's Diversification Efforts Through Manufacturing Sector Growth indicates the need for a Bachelor of Arts in Industrial Design. The highlight the following as challenges faced by the manufacturing industries in Botswana:

- **Poor work ethic of the labour workforce**
  - Poor labour productivity
  - Lack of creativity and innovation

- As a result, the sector is uncompetitive

- **Lack of skilled labour which affects:**
  - Development of new goods
  - Development of new markets for products
  - Development new advanced production processes

Lack of an innovative qualification aimed at instilling a culture of continuous innovation among creative industries has been cited as an impediment to this sector's growth in Botswana (Local Enterprise Authority, 2008). Successful exploitation of new ideas has driven economic progress of many countries. "New technology and scientific understandings have unleashed new waves of innovation, creating many opportunities for creative industries to gain competitive advantage (Innovation Report, 2003)."

The National Development Plan 11 of April 2017 – March 2023 under Diversified Industries, EDD *Strategy:* 6.136states that efforts will continue to consolidate on 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.

The National Human Resources Development Strategy (NHRDS), through its strategic plan 2009-2022 (Ministry of Education and Skills Development, 2009) "Realizing our Potentials" which 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 it is an essential requirement to move 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 form part of the top 20 skills in demand and industry priority areas as indicated in the Interim Sector Skills in Demand (December 2016) reports, Botswana labour market Observatory report from HRDC.

1.2 Purpose

The purpose of the Bachelor of Arts Honours in Industrial Design is to prepare students for research based postgraduate study and entry into an industrial design career by enabling students to produce creative solutions to complex problems in industrial design and to conduct and report on research under supervision.

The Qualification produces Design managers, Innovators, Design and Technologists, Exhibition planners, Design Researchers and manufacturers, graduates who are grounded in the use and invention, Technology and production of consumer products. The students will be equipped with skills to be able to design, create, integrate, and communicate ideas across industrial/ product design areas and also equip learners with problem-solving skills that will enable them to solve complex social and environmental issues.

The qualification will produce graduates:

- Who have the technical skills and ability to create, integrate, and communicate ideas visually and textually
- Who have problem-solving skills to solve industrial design related problems in the workplace
- Who are grounded in the application of technology, creativity and innovation in the invention Industrial designs
- Who are creative and versatile to make a positive impact in the industrial design industry
- Who are capable of applying the latest technologies to indigenous knowledge and come up with creative and innovative computer-aided visual messages and concepts
- Who are capable of conducting research in order to develop industrial design briefs

2.0 ENTRY REQUIREMENTS (including access and inclusion)

2.1 Entry Requirements:

(a) Normal Requirements

- Bachelor's degree (Level 7) in Industrial Design or any other Product design-related field of study.
- Advanced Post Graduate Diploma in an Industrial/product design-related field.

3.0 QUALIFICATION SPECIFICATION	SECTION B
GRADUATE PROFILE (LEARNING OUTCOMES)	**ASSESSMENT CRITERIA**
1. Plan and execute Industrial design research using appropriate research methodologies and techniques	1. Demonstrate through practice-based design research an advanced knowledge of the socio-technical, environmental and economic eco-systems of industrial design both locally and globally 2. Identify and use relevant technical, theoretical and practical domains of knowledge in their design research and practice. 3. Select appropriate research methods and apply them to identified area or a research project 4. Implement research and data collection techniques to gather relevant data on the area under investigation. 5. Report on secondary research by means of a literature study that argues on the similar or related area under study 6. Analyse spoken or written data from community and professional industrial/ product designers' context and interpret findings with insight 7. Develop and adhere to ethical considerations in the conduct of research and data collection in the organization and the community 8. Write a research report that reflects the Industrial Design research approach and that provides meaningful recommendations 9. Communicate the results of design research in writing and speaking
2. Produce creative solutions to complex, social and environmental issues using professional judgment	1. Apply critical thinking in discovering and studying the identified problem 2. Apply cognitive and technical skills to demonstrate a coherent understanding of a body of knowledge and theoretical concepts of design, with advanced understanding of their respective design specialisation 3. Use advanced creative and problem-solving techniques to address the issue under study 4. Design and develop product design specification to guide ideations stage 5. Create alternative solution ideas to the problem

	6. Develop and Assess actions under instructions to meet quality targets 7. Use evaluation matrix to determine the best and ideal candidate solution concept to the problem under investigation
3. Develop products/services taking into account not only the customer needs, but also the manufacturability, the costs and the constraints related to the production process	1. Justify choice of material and colour alternatives for the selected product. 2. Determine the production costs and other related costs for the ideal concept 3. Identify possible manufacturing processes and techniques appropriate for the design 4. Quantify material needed for the solution product 5. Outline the production constraint related to the envisaged product/service 6. Modify a product by creating the illusion of form space 7. Draw images from a modeled scene using shading and other techniques 8. Differentiate between positive space and negative space on a drawing medium such as paper. 9. Generate and conceptualize ideas and work using variety of tools. 10. Use a variety of media and/or process to demonstrate knowledge of rendering techniques.
4. Manage and lead design teams and workgroups with multidisciplinary competences and apply approaches that ensure a harmonious convergence towards the customer final satisfaction	1. Describe strategic frames where the product/service should be implemented to the design teams 2. Demonstrate a high degree of professionalism characterised by initiative, creativity, motivation and self management 3. Identify and assess the personnel roles and skills required within the design studio or design business 4. Evaluate, synthesise and use information from a variety of source 5. Exercise initiative and personal responsibility in the work environment 6. Develop new strategies to meet short and long-term trading objectives of design businesses 7. Provide understanding and practical advice to the process in delegate businesses 8. Interpret quality system issues and strategically plan quality processes to achieve effective design outcomes

	9. Identify and evaluate opportunities to develop competitive and sustainable design strategies for a global market 10. Employ a culture for creativity and innovation through the application of design thinking approaches and methods
5. Demonstrate knowledge of professional design practices and processes, including but not limited to ethical behaviors and intellectual property issues such as patents, trademarks and copyrights	1. Identify and implement processes to achieve ecologically sustainable designs. 2. Identify ethical issues related to industrial design research and development in a relevant field 3. Demonstrate knowledge of ethical values in field work 4. Articulate what makes a particular project or case study ethically defensible 5. Analyse and discuss key characteristics and emerging issues of global practice in industrial design contexts 6. Discuss appropriate procedures for obtaining intellectual property protection 7. Explain the fundamental legal principles relating to confidential information, copyright, patents, designs, trademarks and unfair competition 8. Identify and assess ownership rights and marketing protection under intellectual property law as applicable to information, ideas, new products and product marketing 9. Identify and analyze the intellectual property issues raised by the client and facts
6. Produce packaging solutions for new products, range re-launches and range extensions	1. Determine the priorities and expectations of the target group of the product. 2. Analyse the economic, environmental and social factors of packaging design 3. Apply understanding of the principles of two- and three-dimensional design to create a packaging design outcome 4. Create three dimensional models of the packaging design 5. Design creative forms which reflect the corporate identity and attracts attention between similar ideas 6. Select the right kind of material with thinking the

	relationship between packaging and material 7. Develop and promote new packaging for new product 8. Investigate a packaged product category in relation to a defined market 9. Develop, document, evaluate and present the iterative design process in a packaging design project
7. Demonstrate knowledge and understanding of working with industrial design animation production projects	1. Initiate the design, planning and development of 3D animation productions 2. Describe characteristics of well-designed and executed industrial design animation 3. Apply, manipulate and combine media to create advanced 3D animated performances 4. Demonstrate skills in the use of industry standard tools for animation 5. Describe the complex elements of motion as applied to industrial design. 6. Appraise and evaluate the work of others in the area of 3D animation. 7. Assess and critique past and current animation trends in industrial design 8. Create accurate and aesthetically appealing computer-generated animations
8. Apply communication skills to present a clear and coherent exposition of knowledge and ideas to a variety of audiences, including taking responsibility for arguing a case and documenting a professional project and/or thesis	1. Articulate complex design ideas to diverse audiences through advanced communication strategies and technologies 2. Communicate industrial design proposals using a variety of representational techniques informed both by current methodologies and emerging 3. Develop visual presentations incorporating a logical structure and coherent design 4. Use knowledge of digital presentation tools to create and present effective presentations 5. Provide effective transitions that establish connections, signal movement from one idea/concept to another, and clarify relationships among ideas. 6. Employ vocal variety in rate, pitch and intensity

4.0 QUALIFICATION STRUCTURE SECTION C

	Title	Level	Credits
FUNDAMENTAL COMPONENT Subjects / Units / Modules /Courses	Sustainable Product Design	8	15
	Ethical & Contemporary Issues in Design	8	15
	Advanced professional Practice	8	20
CORE COMPONENT Subjects / Units / Modules /Courses	Capstone Project: Research & Development	8	30
	Capstone Project: Manufacturing & Testing	8	30
ELECTIVE COMPONENT Subjects / Units / Modules /Courses	Animation Practice for Design	8	12
	Packaging Design		
		Total	**122**

The table below shows module distribution in relation to fundamental component, core component and elective component. Students are to choose 1 module out of the 2 as electives, where students are to choose electives in a semester. The total number of credits required for a student to graduate in this Honours qualification is **122** credits.

Module Classification	Module status	Total number of modules	Total number of Credits	Credit Percentages
Fundamental Component	Compulsory	3	50	41%
Core Component	Compulsory	2	60	49%
Elective Component	Students choose 1 out of 2 modules	2	12	10%
	Totals	**7**	**122**	**100%**

5.0 RULES OF COMBINATIONS, CREDIT DISTRIBUTION (WHERE APPLICABLE):

The minimum duration of this qualification shall not be less than 1 academic year (2 semesters). The maximum duration shall not be more than 2 academic years. The students are classified as per the following nomenclature on the basis of credit hours completed:

Minimum NCQF Credit Level	NCQF Descriptor Level Credit Composition Rule	Qualification credit distribution
120	**Level 8 credits** (122)	122

5.1 Students must take and pass all pre-requisite modules to be allowed to take successive modules.

6.0 ASSESSMENTS AND MODERATION ARRANGEMENTS

6.1 Assessment Arrangements

Assessment arrangements shall be put in place to assess if the course learning objectives and outcomes has been achieved. These are done with reference to the approved module descriptors and the assessment criteria. Assessments are created with a view to cater for all learners including the disabled, and/or have been identified as having additional support needs. Appropriate arrangements to access the assessment without compromising its integrity are put in place.

The qualification assessments shall include both the summative and formative assessments.

6.2 Moderation Arrangements

Moderation arrangements shall also be put in place in this qualification to enable ETPs to cater for consistency in awarding of marks and results both internally and externally. This arrangement ensures that an assessment outcome (e.g. mark and / or grade) is fair, valid and reliable, that assessment criteria have been applied consistently, and that any differences in academic judgment between individual markers can be acknowledged and addressed.

Arrangements shall be made for both internal and external moderation.

6.2.1 Internal Moderation Requirements

Internal moderation is taken by ETPs to assess the consistency in awarding of marks and results internally.

(a) **Design of Assessments stage**. The principal aspects considered at this stage are a review of:

- Compatibility of assessments with learning outcomes
- Over-arching approach to assessment
- Assessment criteria
- Marking schemes
- Model answers
- Consistency with NCQF level
- Suitability of tasks, questions, etc.

The feedback given from the design stage is incorporated to the assessment.

(b) **Moderation after Marking.** The key activities of moderation process at the marking stage include:

- Sampling of marked assessments
- Additional marking of borderlines and fails
- Double marking of dissertations, major projects/designs or presentations.
- Adjudication by another marker where there are significant differences between the marks given by two or more assessors.
- Evaluation of consistency where multiple staff members have contributed to the marking.
- Consideration of special circumstances, which may have affected the performance of a group of students1.
- Overview of the School's approach to considering the special circumstances of individual students.

Once completed feedback is provided and amendments made where possible.

6.2.2 External Moderation Requirements

Arrangements are made for external moderation for marked script. The moderators must be registered with Botswana Qualification Authority (BQA) as moderators.

Key activities of the external moderation process include:

- Sampling of marked assessments, assignments, tests, projects and dissertations.
- Compatibility of assessments with learning outcomes.
- Scrutiny and additional marking of borderline and fail cases.

- Double marking of dissertations
- Adjudication by another marker where there is a great disparity between marks awarded by two or more assessors
- Evaluation of consistency where multiple staff members have contributed to the marking.
- Consideration of special circumstances, which may have affected the performance of a group of students.

Once completed feedback is provided and amendments made where possible.

7.0 RECOGNITION OF PRIOR LEARNING (if applicable)

7.1 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 knowledge and skills acquisition for admission and exemptions for this qualification.

7.2 Level 7 qualifications in Industrial design-related fields will automatically be recognized as prior learning.

8.0 PROGRESSION PATHWAYS (LEARNING AND EMPLOYMENT)

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

Vertical Progression

1. Vertical progression – Exit

   Graduate with Bachelor of Arts (Honours) in Industrial Design can progress or further their studies into the following qualifications

- MSc in Product Design/ Industrial design
- MA in Industrial design
- MSc in Design and Technology
- MA in Furniture design and Manufacturing
- MA in contemporary Art & Design
- MA in Design
- MA in Instructional Design and Technology

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 diploma includes,

- Bachelor of Design Honours in Product Design
- Bachelor of Design Honours (Design and Technology)
- Bachelor's degree Honours in Furniture Design
- Bachelor of Design Honours (Manufacturing)

Diagonal Progression

Bachelor of Arts (Honours) in Industrial Design qualification also enables learners to progress diagonally/cross to a higher qualification of a different field by presenting a completed qualification or credits and must meet the minimum requirements for admission to the target qualification.

Employment Pathways

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

1. Industrial designer
2. Technology & Development Manager
3. Innovation and Creative Manager
4. Design Manager
5. Production Manager
6. Quality Assurance/Control
7. Exhibition /Display Designer
8. Research consultant/Engineer
9. CAD Designer
10. Project Manager
11. Product Strategist
12. Entrepreneur
13. Sustainable Product designer
14. Technical sales Executive
15. Marketing Executive

9.0 QUALIFICATION AWARD AND CERTIFICATION

9.1 To qualify for qualification award and certification, a students must

- Attain a minimum of 122 credits overall, including 12 credits of elective components.
- Complete satisfactorily any additional and specified requirements of the qualification.
- Have official verification that he/she has covered and passed all the modules
- The graduates' class of degree will be determined by the weighted average mark for all modules, contributing to the honours assessment using the classification boundaries presented in the table below.

Class of Degree	Weighted Average
First Class Honours	85+%
Second Class Honours (Upper Division)	75-84.99%
Second Class Honours (lower Division)	65-74.99%
Third Class Honours	50-64.99%

10.0 REGIONAL AND INTERNATIONAL COMPARABILITY

A comparison of this qualification with those of other Regional and International institutions offering similar and closely related Honours Degree qualifications reflects as indicated in the Table below. The duration is scoped to 1 year based on BQA requirements and it's a general requirement for all Honours Degree qualifications.

Regional and International Comparability
Table 2 Similar and closely related Industrial Design

Criteria	University of Johannesburg (South Africa)	UNSW Sydney (the University of New South Wales) (Australia)	Swinburne University of Technology (Australia)
Title	BA Hons (Industrial Design)	Bachelor of Industrial Design (Honours)	Bachelor of Design (Industrial Design) (Honours)
Duration	1 Year	1 Year	1 Year
Credits	120	48	100
Total number of Modules	3	5	5
Number of	None	2	None

Elective Modules			
Entry Requirements	• An appropriate Bachelor's degree in Industrial Design with a recommended minimum of 60% for all final year modules	• Successful completion of the Bachelor of Industrial Design)	• Successful completion of the Bachelor of Design (Industrial Design)
Structure	• Industrial Design Practice 4	• Capstone Research	• Methods for Design Research
	• Industrial Design Theory and Research 4	• Capstone Project	• Capstone: Industrial Design Major Project 1
	• Industrial Design Professional Practice 4	• Advanced Studio	• Professional Design Attributes
		• Two Electives	• Design Systems and Services
			• Capstone: Industrial Design Major Project 2
Learning outcome	• Produce creative solutions to complex industrial design problems • Conduct and report research under supervision • Act ethically and professionally	• Demonstrate advanced knowledge of technical, historical and social aspects of product design at a level expected in professional practice • Undertake ongoing enquiry and learning, demonstrating judgment in planning methods of inquiry and applying new knowledge to complex problems in design and other fields of	• Demonstrate understanding of the underlying principles and concepts of industrial design and its applications in other specialized fields. • Develop products that meet human needs and expectations, ranging from personal and household items to commercial and industrial equipment

		learning. • Critically engage with, synthesise and evaluate complex ideas of social and environmental importance in the exercise of professional judgment applied in product design and related areas of practice. • Communicate effectively within a team and with a range of audiences, making skilled use of visual, digital and written modes of communication including the transfer of precise technical information.	

Similarities

The following are noted similarities:

a. The duration of training is 100% similar
b. The core modules taught in the qualifications are 80% to 100% similar.
c. The number of modules offered for the qualification are 90% to 100% the same.
d. The course is meant to create special working professionals regarding some significant technological advancement and offer competitive edge over other employees.

Differences

Key differences are noted in the following areas.

a. The credits for modules are different this could imply the formula used.
b. Another difference is of names of modules as most of them have different names but similar learning outcome.

Trends in Industrial design qualifications and the market outlook

The general trend noted is that many universities introduce one year Honours Degree at the end of the level 7 as a separate Research and project-based assessment in the qualification to allow students to get Industry experience while still learning, which empower students with practical skills and new technologies applied in the industry.

Contextualization

This Honours qualification is designed to develop the students' capability to think, design and develop product concepts, visualize them using the latest computer technology, and build models in a well-equipped model shop or computer lab. Students learn presentation skills to demonstrate their creative and unique solutions. Project management and research methods are applied in the yearlong capstone project, which is equivalent to thesis. The leaner's will be prepared to be technosavy, highly competent, adaptive, ethical, creative, innovative and solve problems within their communities and world using international best design practices

REVIEW PERIOD

The Bachelor of Arts (honours) in Industrial Design will be reviewed every 5 years.