QUALIFICATION SPECIFICATION							SECTION A
QUALIFICATION DEVELOPER	Limkokwing University of Creative Technology						
TITLE	Diploma in Construction Management			**NCQF LEVEL**		6	
FIELD	Physical Planning and Construction			**SUB-FIELD**	Construction Management		
NEW QUALIFICATION	√		REVIEW OF EXISTING QUALIFICATION				
SUB-FRAMEWORK	General Education		TVET		Higher Education	√	
QUALIFICATION TYPE	Certificate		Diploma	√	Bachelor		
	Bachelor Honours		Master		Doctor		
CREDIT VALUE					**360**		

1.0 RATIONALE AND PURPOSE OF THE QUALIFICATION

Rationale

Construction as a profession has gained prominence in Botswana's fabric over the last two decades. The complexity and the nature of buildings being constructed in modern Botswana have forced architecture and the built environment at looking into the construction industry as an essential discipline. Employee shortages, skills gaps and maintaining a competitive edge in an ever-changing global workforce are issues of importance in today's construction industry.

While there is no single answer to solve all the issues, career and technical education is an essential starting point. Graduates with this qualification can obtain industry-recognized credentials in many different fields of study. Credentials represent that students have obtained knowledge and skills training that will benefit business, industry, and the economy for years to come. Skills programs in institutions are developing Botswana's most valuable resources and its people. This program helps graduates gain the skills, technical knowledge, academic foundation, and real-world experience they need to prepare for high-skill, high-demand, and high-wage careers in the construction industry.

The construction industry is multifaceted, comprising contractors, subcontractors, architects, engineers, designers, suppliers and other professionals in the private, government and military sectors. The global construction industry is one of the most lucrative and competitive. To successfully bid on projects, graduates will learn that construction firms must run an efficient operation, one that is proactive about safety and sustainability, and flexible enough to respond to evolving industry demands. Certification to construction industry standards (i.e ISO 9001 standards) is one of the best investments a construction firm can make

Today, more than ever, the construction industry plays a vital role in initiating, planning, and providing

career and expertise training. A workforce educated through skills development represents a complete range of career areas across the entire economy and is driven by the needs and demands of the fast-growing economy. This qualification will produce graduates with developed skills that companies need to increase productivity and competitiveness. Graduates who complete this qualification and enter the industry are better prepared to help fill the skills gaps that are left by the ageing workforce.

"The construction industry in Botswana

The construction industry in Botswana is considered important and has an impact on the overall performance of the economy. For this reason, the government has tried many different schemes and Acta Structilia 2010: 17(1)32

Strategies aimed at helping the industry grow. The government has also implemented many schemes in particular to help the local enterprises to improve their companies. Adlowa (2002: 24-30) listed the following initiatives developed to help the local contractors:
• The 1995 presidential directive to bail out failing contractors on a 'case by case' basis (cab37/85).
• The 50-million-pula bail-out fund for citizen contractors of 1998.
• The 30% reservation policy on projects over P1.8 million for local contractors.
• The 100% reservation for all projects below P1.8 million.
• The price preference during tendering.
• The waiving of performance bonds.

Unfortunately, despite these good intentions, the government has not yet realised the best results. Adlowa (2002: 17), quoting Radujkovic, states "that only 16% of building construction projects were regarded as successfully completed." Simply too many projects have failed, many more are greatly delayed, and budgets have escalated by 100%. There are many other such problems. Burgess & White (1979: 19) list the following among the many problems causing poor project delivery:
• Inefficient site management.
• Bad planning and programming.
• *Poor site management support systems.*
• *Poor interpretation of specified quality requirements.*

Both the findings in this article and the writers' general experience in the Botswana construction industry show that the general tendency to delay projects occurs from the smallest to the largest projects. However, the economic impact is felt much more on bigger projects rather than on smaller ones. In general, the problem could be that the smaller contractors, even with poor performances, are upgraded to a higher grading once they finish a few projects. Aspects such as whether they finished those projects in time and within budget are not considered. No assessment is done regarding the difficulties encountered during the projects to determine the justification of upgrading the contractor to the next level".
Terryson Himayumbula & Hendrik Prinsloo Is project management a benefit to the Botswana construction industry?

This qualification exposes them to real-world skills and tasks. This rigorous style of training challenges students to push themselves beyond their comfort zones to be successful. The construction industry in Botswana is in dire need of these skilled and trained professionals who could make informed, strategic decisions for construction best practice. This course will equip graduates with ability to manage large and small-scale construction projects. It is also advantageous to long-time practitioners in the industry, as well as those looking to enter construction who need an overview of key

management principles.

In the recent launch of the revised Citizenship Entrepreneurial Development Agency (CEDA) by the President of the Republic of Botswana Dr. M.E.K Masisi mentioned that the Government has reviewed the CEDA guidelines to ensure responsiveness to an increasingly dynamic and unpredictable national and global economic environment with a view to support and entrench broad based citizen economic empowerment and critical sectors such as agro-processing, construction, technology and innovation, energy, manufacturing, agriculture, tourism, mining, and creative industry will receive a major boost.

"Ladies and Gentlemen, Government will continue to explore avenues to empower Batswana to facilitate their participation in the growth and diversification of our economy. In this regard, sectors such as agro-processing, manufacturing, agriculture, creative industry, tourism, mining, construction, technology and innovation have been identified as industries that will significantly add value to our efforts in economic diversification and job creation."
Remarks by his excellency Dr. Mokgweetsi E.K. Masisi president of the republic of Botswana on the launch of the revised CEDA guidelines.16th July 2020.

Construction managers need to learn the basics in commercial and residential construction in addition to leadership, planning and supervisory skills.

The qualification also looks at environmental management, and the process of tendering in the construction industry. The qualification establishes you with the practical skills to move into a project-management focused role, and can be professionally beneficial for site managers, contractors, and supervisors, as well as planners like quantity surveyors and junior architects.

- **Purpose**

The purpose of the qualification is to equip graduates with:

- Adequate knowledge to examine possible construction methods for medium and large buildings.
- Knowledge on application of principles of construction contracts management in running construction projects in the built environment.
- Knowledge and skills to manage the quality control process during projects implementation.
- Knowledge to prepare cost estimates, budgets, and work timetables from project construction drawings.
- Adequate knowledge and skills to use specialist equipment to complete construction surveys and setting out exercises.

2.0 ENTRY REQUIREMENTS (including access and inclusion)

2.1 Entry Requirements:

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. The qualification admits learners from any design field regardless of their age, gender, disability or learning difficulty.

(a) Normal Requirements

- NCQF Level 4 (BGCSE), best 6 subjects with a pass in English, Art, Design Technology and or a science subject.

- NCQF Level 4 (IGCSE), best 6 with a pass in Art, Design Technology and or a science subject.

- Recognition of prior learning (RPL) and CAT in line with National RPL and CAT policy shall also be used to admit prospective learners.

3.0	
GRADUATE PROFILE (LEARNING OUTCOMES)	**ASSESSMENT CRITERIA**
3.1 Demonstrate the fundamental knowledge of mathematical skills that apply in the built environment.	3.1.1 Identify typical examples of problems encountered in construction. 3.1.2 Use mathematical formulae to answer built environment and problems. 3.1.3 Apply analytical methods to surveying and setting out procedures. 3.1.4 Apply understanding of statistics to construction problems. 3.1.5 Solve mathematical problems and equations utilizing algebraic and trigonometric functions.
3.2 Examine possible construction methods for medium and large buildings.	3.2.1 Produce basic drafting proficiency, including the ability to use industry-standard computer software to generate 2D and 3D drawings. 3.2.2 Describe the importance of data collectors in construction survey. 3.2.3 Apply basic competency in the use of surveying data collectors. 3.2.4 Calculate angles using data collectors. 3.2.5 Select appropriate construction methods for a small, medium to large scope of work. 3.2.6 Describe in detail the construction process for medium to large project scope. 3.2.7 Distinguish between various constructions methods for appropriate use.
3.3 Apply advanced technical knowledge of building materials and finishes for buildings.	3.3.1 Examine the properties of common construction materials and their behaviors under different environments, short or long-term 3.3.2 Assess material properties, mechanical tests and quality control tests for wood and wood products, concrete, masonry, glass, plastics, iron and steel, aluminum and aluminum products, paints and protective coatings, bituminous products, gypsum products, resilient flooring, and carpeting. 3.3.3 Appraise appropriateness and sustainability of materials for construction projects 3.3.4 Develop knowledge of material science and behaviour of various building materials used in

	construction. 3.3.5 Identify the construction materials required for the assigned work. 3.3.6 Provide procedural knowledge of the simple testing methods of cement, lime and concrete etc. 3.3.7 Investigate and specify appropriate building materials and finishes for a specific structure or space. 3.3.8 Prescribe alternative building materials and finishes for a specific structure and space. 3.3.9 Specify appropriate mixes of composite materials for specific tasks/jobs 3.3.10 Analyze the effect of the application of different building materials & finishes to character of a structure or space. 3.3.11 Conduct experiments to demonstrate the result of applying different materials to the same structure or space 3.3.12 Apply critical thinking skills in formulating building solutions in various situations.
3.4 Demonstrate the ability to use specialist equipment to complete construction surveys and setting out exercises.	3.4.1 Organize resources, record and process survey data using specialised equipment 3.4.2 Use computer applications to process and manipulate survey data. 3.4.3 Use specialised equipment to set out construction works. 3.4.4 Present an appropriate format of the outcomes of survey or setting out exercises.
3.5 Apply the techniques and expertise of economics to the study of the construction company, the construction process and the construction industry.	3.5.1 Construct the feasibility studies for construction projects and business. 3.5.2 Assess the market mechanism for construction firms. 3.5.3 Asses how market mechanisms affect leadership and communication within construction businesses. 3.5.4 Evaluate key financial accounting data in order to make strategic business decisions for construction firms. 3.5.5 Design and integrate key business strategies for the successful operation of construction businesses including management, marketing, personnel and resources strategies. 3.5.6 Explain the property development process, its investment risks and return on investment.
3.6 Apply the principles of construction contracts management in running construction projects in the built	3.6.1 Apply the administrative content and key tasks associated with construction contracts. 3.6.2 Identify types of contracts and agreements.

environment.	3.6.3 Describe the purpose of the documents that compose a contract for the purchasing or supply of goods and/ or services in construction industry. 3.6.4 Describe the stages involved in forming contracts for the purchasing or supply of goods and/or services. 3.6.5 Describe how to develop and present business cases to justify expenditure on supplies on projects. 3.6.6 Identify the initial actions processes associated with the tendering process. 3.6.7 Describe initial tender process documentation and associated content. 3.6.8 Identify the tender evaluation and acceptance process. 3.6.9 Outline the regulations that can impact on the tendering process. 3.6.10 Explain types of contractual risk and how to manage them.
3.7 Demonstrate technical, economic, legal and managerial expertise when managing construction projects.	3.7.1 Evaluate forms of construction for various property types. 3.7.2 Assess the practices and procedures of international quantity surveying. 3.7.3 Compare and contrast procurement strategies. 3.7.4 Identify the contractual requirements and procedures relevant to construction finances. 3.7.5 Evaluate the factors which affect the cost of a building. 3.7.6 Evaluate the sources of cost data relating to construction. 3.7.7 Assess cost planning methods to control the financial aspect of a project. 3.7.8 Illustrate the quantification and costing of construction work. 3.7.9 Assess contract practices and administration processes. 3.7.10 Evaluate cost during the construction of a project
3.8 Demonstrate ability to manage the quality control process during projects implementation.	3.8.1 Use theories, principles and processes involved in quality management on a construction-based project. 3.8.2 Differentiate between quality control and quality management and their evolution. 3.8.3 Apply various legislation, codes, and standards

	on a construction-based project. 3.8.4 Apply quality management best practice in construction in terms of both processes and attitudes. 3.8.5 Investigate quality management methods and systems. 3.8.6 Identify the impacts of poor quality in construction. 3.8.7 Summarize the history of quality management in various industries. 3.8.8 Evaluate the application and benefits of Quality Management within a corporate structure. 3.8.9 Interpret case histories and the consequences of poor-quality practices.
3.9 Apply the Health and Safety principles to achieve a sustainable on-site work environment.	3.9.1 Identify key hazards in workplace. 3.9.2 Identify importance of health and safety rules 3.9.3 Design safe practices and procedures in a construction site. 3.9.4 Implement best-in-class standards in health and safety management. 3.9.5 Prepare reports on health and safety issues. 3.9.6 Develop integrated safety, health and environmental management. 3.9.7 Construct plan for an emergency in a site. 3.9.8 Establish and execute risk assessment programmes. 3.9.9 Apply health and safety laws in construction-based project.
3.10 Prepare cost estimates, budgets, and work timetables from project construction drawings.	3.10.1 Apply cost estimation into project management processes and procedures. 3.10.2 Apply understanding of the importance of the central role and importance of managing costs throughout a project lifecycle 3.10.3 Apply critical planning, scheduling, and control procedures in projects. 3.10.4 Utilize work management techniques such as the Work Breakdown Structure (WBS) the Work Package and the Cost Breakdown Structure (CBS). 3.10.5 Produce costs estimates and deal with cost escalations and reductions.

	3.10.6 Apply the key aspects of managing a project budget effectively.

4.0 QUALIFICATION STRUCTURE **SECTION C**

	Title	Level	Credits
FUNDAMENTAL COMPONENT Subjects / Units / Modules /Courses	English for communication	5	10
	Mathematics for Built Environment	5	10
	Pricing and Estimating	5	10
	Contractual Procedure	6	12
	Professional Practice	5	10
	Safety Health and Environmental Management	6	12
CORE COMPONENT Subjects / Units / Modules /Courses	Quantity Surveying	6	12
	Building Services	6	12
	Construction Law	6	12
	Construction Management	7	52
	Building and Civil Engineering Contract	6	12
	Quality Management	6	12
	Quantity Surveying	7	14
	Construction Project Software. (Microsoft Office)	6	12
	Site Surveying	6	12
	Technical Drawing	6	24
	Building Structures	6	24
	Construction Economics	7	14
	Construction Materials	5	10
	Construction Technology	6	22
	Industrial Attachment	6	40
ELECTIVE COMPONENT Subjects / Units / Modules /Courses	Compliance, Contracts, And Regulations	6	12
	Cost Management		
		Total	**360**

Module distribution is a relation to fundamental component, core component and elective component. Students are to choose 1 module out of the 2 as electives at Year 2 (elective modules are: Compliance, Contracts and Regulations and Cost Management). The total number of credits required for a student to graduate in this qualification is **360** credits including 12 credits from elective modules.

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

5.1 The minimum duration of this qualification shall not be less than three (3) academic years (six semesters), for learners with Certificate 5 at entry i.e. BGCSE leaner's and minimum of two (2) academic years (four semesters) for leaner's with A- level certificate.

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

5.3 In the second year, students are required to select and register for **one (1)** **Elective out of (2) two modules.** The electives are designed to allow students to focus on an area of their interest within the field of Construction Management. Students must take a minimum of 12

credits for electives.

6.0 ASSESSMENT AND MODERATION ARRANGEMENTS

The learners will undergo formative and summative assessments which should be designed by assessors who are accredited by BQA.

The weighting should be as follows:

Assessment	Weighting
Formative	60%
Summative	40%

6.2 MODERATION

There will be internal and external moderation undertaken by moderators 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.

7.0 RECOGNITION OF PRIOR LEARNING

7.1 There will be provision for awarding qualification through RPL in accordance with ETP and National policy on RPL.

8.0 PROGRESSION PATHWAYS (LEARNING AND EMPLOYMENT)

Horizontal Articulation (related qualifications of similar level that graduates may consider)

(NCQF Level 6

- Diploma in Architecture Technology
- Diploma in Project Management
- Diploma in Facilities Management
- Diploma in Quantity Surveying

Vertical Articulation (qualifications to which the holder may progress to)

(NCQF Level 7

- Bachelor of Technology in Construction Management
- Bachelor of Technology in Architecture Technology
- Bachelor of Science in Project Management
- Bachelor of Science in Facilities Management
- Bachelor of Technology in Quantity Surveying
- Bachelor of Technology in Construction Management (Facility Management)
- Bachelor of Technology in Construction Management (Health and Safety)

- **Employment Pathways**

Other than progressing academically Graduates of the course may find employment in a range of public and private organisations for the following posts:

- Building control surveyor
- Building services engineer
- Building surveyor
- Construction manager
- Estates manager
- Fire risk assessor
- Quantity surveyor
- Site engineer
- Sustainability consultant
- Project Manager
- Project Co-coordinator
- Estimator
- Project Document Controller
- Scheduler / Scheduling Engineer
- Building Consultant

9.0 QUALIFICATION AWARD AND CERTIFICATION

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

- Attain a minimum of 360 credits overall, including 60 credits at Level 5.
- A certificate in Diploma in Construction Management will be awarded on completion of the Qualification.

10.0 REGIONAL AND INTERNATIONAL COMPARABILITY

Summary of Similarities and Differences Observed

All the three qualifications are practical oriented with more emphasis on building codes and standards, health and safety aspects, construction project administration and material and price estimation each qualification amongst the three has its own uniqueness, nonetheless.

RMIT is more inclined into the planning, coordination, and control of a project from inception to delivery. This diploma puts more emphasis on the principles, techniques and regulations of the building and construction industry for all types of medium-rise and wide-span buildings. This practical curriculum incorporates hands-on work and project-based learning. Leaners experience many aspects of building projects and understand how they all relate to each other. Leaners go on site excursions to gain hands-on field experience which will include visits to residential and commercial construction projects.

UCOL provides leaners with the confidence that construction and building projects are being effectively planned and organised with sound financial management that meet the requirements of legislation and codes of practice standards.

Cape Peninsula qualification is structured to provide a career-oriented technological education and to

prepare learners for supervisory level employment in the construction management, quantity surveying and allied industries in the built environment. The three qualifications also teachers the learners on interpretation of drawings which is very imperative in the construction discipline.

REVIEW PERIOD
Every five (5) years

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CODE (ID)			
REGISTRATION STATUS	**BQA DECISION NO.**	**REGISTRATION START DATE**	**REGISTRATION END DATE**
LAST DATE FOR ENROLMENT		**LAST DATE FOR ACHIEVEMENT**	