QUALIFICATION SPECIFICATION SECTION A								
QUALIFICATION DEVELOPER	Limkokwing University of Creative Technology							
TITLE	Bachelor of Science (Hons) in Software Engineering					**NCQF LEVEL**	8	
FIELD	Information and Communication Technology			**SUB-FIELD**	Software Engineering			
New qualification	√	Review of existing qualification						
SUB-FRAMEWORK	General Education		TVET		Higher Education	√		
QUALIFICATION TYPE	Certificate		Diploma		Bachelor			
	Bachelor Honours	√	Master		Doctor			
CREDIT VALUE	120							

1.0 RATIONALE AND PURPOSE OF THE QUALIFICATION

Rationale for the Qualification

The **Botswana National Information and Communication Technology Policy** (Maitlamo, 2007) policy advocates for skilling ICT graduates in relevant and emergent ICT skills, such as software engineering, so that the country can quickly develop knowledge based economy, which should be the springboard for economy diversification. Skills in Software Engineering are critical skills as they cut across any software development of any kind and nature, and this is critical for Botswana ICT industry. The policy recommended that human skill development in evolving ICT skills like software engineering should be adopted with the intention of producing local ICT skills-set in software engineering that can deliver quality oriented and research based local software applications.

The **Botswana Consultancy on the Development of the Science and Technology Human Resource Strategy 2009 Report (BNSTR)** explicitly stated that Botswana labour market "…were deemed in short supply of local ICT (software development, hardware development); database administrators, security specialists (ICT), forensic specialists (ICT), software developers, project managers (ICT) and system analysts…" The report further alluded to the fact that within ICT, software engineers and networking engineers are forecast to be of greatest demand…"Software engineering skills sets are appropriate skills to drive the Botswana government's effort to create Knowledge based economy, Information Society and diversification of the economy. This also calls for development of research skilled software engineers who can articulate and relate to what Botswana software industry needs, hence the need for this qualification.

(a) National Development Plan 10 and 11 (2010-2023)

In the NDP10 and NDP 11 have all emphasised the need for Botswana's economic diversification from non-renewable-resource driven economy to a knowledge driven economy. The have recommended ICT integration and adoption as a critical input as advocated by the Maitlamo

Policy 2007 which calls for e-governance, knowledge based economy and a Botswana information society oriented community. The NDP10 calls for expertise in ICT such as "software engineers and networking engineers" as both the developed and developing move towards technology driven economies, implying knowledge based economy. NDP11 also emphasised the training of local software engineers who would create content and applications that are relevant to the Botswana market and facilitate the implementation of national programmes such as e-Government, e-Health, e-Education and e-Commerce. Software engineering skills are also needed in the development of the information systems architecture that will enable the government to provide E-Services as envisaged in the Botswana E-Government Policy 2011-2016.

The **Human Resource Development Council 2016** report also listed software developers and software engineers among the top occupations in high demand in Botswana. This calls for comprehensive skills development that is operational, tactical and executive, thus a need for research based software engineers who are not only software developers but engineers with an ability to formulate solutions through research.

Consultations with Stakeholders within the ICT industry, as per the needs assessment report availed, as well as former and current students, identified the need for graduates who have programming skills, software-debugging skills, software documentation and testing skills, verbal and written communication skills, analytical and problem solving skills, managerial, project management and research based skills, among others.

All the cited documents, including the needs assessment exercise undertaken, point to the critical need for this qualification. The qualification shall also guide in applying acquired research skills and software engineering in creating new knowledge in key and specific contexts. The ever-evolving software engineering landscape has led to the huge growth in the current software development at local, regional and international levels. Many companies now recognise generally and professional software engineering skills as highly strategic and driver of any knowledge based economy and information society.

Purpose of the Qualification

The purpose of this qualification is to produce graduates with the following knowledge, skills and competences:

- Specialised software engineering skills-sets and possess expert technical knowledge, skills and competence in applied research for software engineering.
- Critical thinking, problem solving and analytical skills to execute tasks related to the application of software engineering techniques, theories and methodologies.
- Capable of analysing, designing, implementing, evaluating and managing software applications.
- Ability to develop creative software applications to solve clients' problems

- interpersonal skills to enable them work as members of a project team
- Capable of observing the ethical and professional codes of the industry

The graduates will be able to work as the following, among others:

- Software Engineer
- Software Architect
- Software Project Manager
- Software Analyst
- Software Test Engineer
- Mobile App Developer
- Information Security
- Database developer
- Software Quality Assurance Engineer
- Information Technologist Support Specialist
- Research Scientist
- Information Technologist Educator

1.0 ENTRY REQUIREMENTS (including access and inclusion)

1.1 **Normal Requirements**

Bachelor's Degree (Level 7) in Software Engineering or any Information and Communication Technology Related field of study.

1.2 **Recognition of Prior Learning (RPL)**

Prospective students who attained qualification and awarded recognition shall be evaluated to determine its equivalence within the NCQF through recorded interviews, oral and practical test to determine the level of knowledge and skill attainment for exemptions for this qualification. The University General Academic Entry Requirement may be considered through Accreditation of Prior Learning (APL) (both Certified Prior Learning and/or Prior Experiential Learning) as per the University's Admissions and Retention Policy.

1.3 **Credit Transfer**

Credit transfer shall also be recognised as an approach to enrol those who have other general ICT degrees or Engineering degrees obtained from other institutions and recognised by BQA for purposes of placing them to an equivalent NCQF level.

2.4 Target Population

Bachelors' Degree in ICT related field (Level 7)

Advanced Post Graduate Diploma in a ICT-related field.

2.0 QUALIFICATION SPECIFICATION SECTION B	
GRADUATE PROFILE (LEARNING OUTCOMES)	**ASSESSMENT CRITERIA**
3.1 Select appropriate theory, practices, and tools for the specification, design, and implementation and evaluation of software applications	3.1.1 Critique software development theories with aim of adopting and using optimized approaches in development of software in context of local environment and resources 3.1.2 Decide through research on relevant theories and approaches to be used for software application to be developed 3.1.3 Explain through presentation the feasibility of developing a given software application and compare tradeoffs in selection of appropriate software development theories 3.1.4 Accept or reject compiled software feasibility project document based on basics or principles in software projects management. 3.1.5 Compile and document a typical feasibility software project document for purposes of records management and approval from sponsors and other stakeholders.
3.2 Investigate essential facts, concepts, principles, and theories relating to software engineering in the context of building software application per user requirement.	3.2.1 Investigate techniques for eliciting software functional requirements from domain stakeholders and recommend appropriate and practical approaches in a given context. 3.2.2 Elicit user requirements using appropriate theories of interaction with software users to derive software functional and nonfunctional requirements. 3.2.3 Verify and authenticate both applicable functional and nonfunctional requirements using appropriate quantitative methods 3.2.4 Apply rigorous and specified software requirements verifications models and tools for developing user senstitve software applications 3.2.5 Compile a typical Software Specification Document for purposes of initiating a software application with the sponsor
3.3 Design software and multimedia based systems in a way that demonstrates comprehension of the tradeoff involved in design choices for delivery of required design plans and	3.3.1 Construct various software designs based on the architecture of the software to be implemented 3.3.2 Determine various approaches to derivation and specification of software application interaction interfaces 3.3.3 Investigate possible and appropriate third party or middleware software for interfacing various software components during software development.

2.0 QUALIFICATION SPECIFICATION SECTION B	
GRADUATE PROFILE (LEARNING OUTCOMES)	**ASSESSMENT CRITERIA**
specification of the application to be developed.	3.3.4 Compose the software application architectural layout based on the software application functionality 3.3.5 Derive the physical specification for implementing information and data repository for the software application based on the data model defined.
3.4 Develop quality software applications systems based on software specifications of user requirements	3.4.1 Justify selection and utilization of appropriate and relevant tools and platforms for developing components of the applications software based on its functionality 3.4.2 Determine software quality measures to be integrated in the development of software application through appropriate software platforms, tools based and according software engineering principles 3.4.3 Critique and moderate software models and design plans in line with available resources in producing quality software derive appropriate software architectures 3.4.4 Manage the evolution of developed software and drive implementation of the relevant changes to suite the prevailing conditions to ensure usage of quality software. 3.4.5 Integrate to different developed components of the application software into one complete fully functional unit
3.5 Solve problems through adoption of emerging ICT technologies in developing contemporary software.	3.5.1 Assess the importance and value of emergent ICT technologies in solving local industry and social problems 3.5.2 Integrate advanced software engineering principles in adopting and utilizing emergent ICT technologies 3.5.3 Adopt various emergent ICT technologies in developing contemporary software applications 3.5.4 Generate possible and creative solutions by integrating various software components which include SHELF software and developed software to realize application required in a multipurpose project 3.5.5 Report on use and gain of emergent ICT technologies in local and international context 3.5.6 Create possible ICT technologies in assisting and solving local problems related to industry and socio domain
3.6 Evaluate software systems in terms of general software quality attributes required	3.6.1 Identify various software testing procedures and apply during the development of software i.e. Unit test,

2.0 QUALIFICATION SPECIFICATION SECTION B	
GRADUATE PROFILE (LEARNING OUTCOMES)	**ASSESSMENT CRITERIA**
guided by the software requirement specification document	3.6.2 Plan various software testing and reliability checks for validation and authenticating software functionality 3.6.3 Select appropriate software testing mechanism and tools 3.6.4 Document various results from generated data during application of particular software testing tool 3.6.5 Present results of the software testing and reliability checks done and discuss the implications and needed corrective action
3.7 Monitor developments of software engineering at a local and global level, and acquaint with progress and challenges	3.7.1 Develop software engineering skills contemporary with current issues in software engineering globally 3.7.2 Participate in local and global works for software engineering and relate to contemporary issues 3.7.3 Document, report and present software engineering related issues. 3.7.4 Relate social engineering issues that happen on global level to local issues with intention n to note areas of collaboration with other stakeholders 3.7.5 Make relevant decision that guide the development of software engineering in the community
3.8 Research through application of numerical and statistical knowledge for testing and improving the quality of developed software.	3.8.1 Approach problems and solve them through researching using appropriate and scientific technologies 3.8.2 Apply relevant research methodologies in conducting software engineering research to produce publishable research documents 3.8.3 Attend research conferences, workshop and seminars with a view to stay updated on latest technologies, theories and methodologies in software engineering and any other emerging technologies 3.8.4 Publish research articles on existing and emerging issues in software engineering in order to create new knowledge and to provide solutions to running problems
3.9 Initiate lifelong and self-directed learning strategies and opportunities	3.10.1 Identify one's areas of weakness which need strengthening through staff development 3.10.2 Participate in software engineering communities through social media platforms blog and present one's reflection and perception of issues related to software engineering 3.10.3 Collaborate with fellow software engineering experts from different organizations to share knowledge

2.0 QUALIFICATION SPECIFICATION SECTION B	
GRADUATE PROFILE (LEARNING OUTCOMES)	**ASSESSMENT CRITERIA**
	3.10.4 Subscribe to professional bodies of software engineering
3.10 Observe professional, ethical and cultural codes of conduct in developing software based applications	3.11.1 Practice principles and values of empathy in a software engineering community or in user domain 3.11.2 Apply principles of ethical and professional practice in conducting software engineering activities in particularly when dealing with different clients 3.11.3 Sensitize and respect cultural norms of various eco systems related to area of occupation and location 3.11.4 Abide to legal statues to guide the operations and conduct of software engineering duties in any given context. 3.11.5 Respect and honor working relationships od subordinates and superiors to maintain good working relationships in any give working environment

	Module Title	Level	Credits
FUNDAMENTAL COMPONENT Subjects / Units / Modules /Courses	Software Architecture	8	10
	Software Maintenance	7	15
	Software Change Management	8	10
CORE COMPONENT Subjects / Units / Modules /Courses	Advanced Software Engineering	8	15
	Advanced Software Quality Engineering	8	10
	Information Security	8	15
	Research (Honours Capstone Project)	8	30
ELECTIVE COMPONENT Subjects / Units / Modules /Courses	Design and Implementation of Systems	8	15
	Artificial Intelligence	8	15
	Cloud Computing	8	15

3.0 Rules of Combination

Candidates will have to complete the following from both fundamental and core components:

Level 7 = 15 Credits

Level 8 = 90 Credits

They will also have to complete 15 credits at level 8 from the elective components, by choosing one elective module, to complete a total of 120 credits for the qualification.

4.0 ASSESSMENT ARRANGMENTS

4.1 **Standard Conditions of Assessment**

Assessment Arrangements

- Candidates shall be evaluated based on summative assessment approach, which evaluates attainment of the critical knowledge and skills for qualification learning outcomes.
- Formative assessment approach, which will evaluate a set of skills, will also be employed to evaluate attainment of module specific learning outcomes.

4.2 **Summative Assessments and Weight Representations**

- Tables 4.2 and 4.3 explain the summative assessments with respect to the timeframe within a semester and the weightage obtained. At times requirements are also stipulated for qualification to do certain summative assessments i.e. the internship and the practical project assessments have key requirements needed in order to do them.

Table 4.2a Practical Module Summative Assessments

Type of Assessment	Period of Assessment	Weight Percentage of the Assessment	Requirements
Computer Lab Practical Test	End of Semester	20%	None
Final Examination	End of Semester	40%	None

Table 4.2b Research Module Summative Assessments

Type of Assessment	Period of Assessment	Weight Percentage of the Assessment	Requirements
Dissertation	End of Degree Qualification: Year 1 Semester 1 Year 1 Semester 2	100%= 50% (Model Design)+ 50% (Implementation)	To proceed to research part 2 a pass is required for research part 1.

Table 4.3: Theoretical Module Summative Assessments

Type of Assessment	Period of Assessment	Weight Percentage of the Assessment	Requirements
Final Examination	End of Semester	40%	None

4.3 **Formative Assessments**

Tables 4.4 and 4.5 explain the formative assessments with respect to the timeframe within a semester and the weightage as it contributes towards the final mark of the module.

Table 4.4: Practical Module Formative Assessments

Type of Assessment	Period of Assessment	Weight Percentage of the Assessment	Requirements
All forms of assessment including tests, group presentations and assignments	As per schedule	20%	None

4.4 **MODERATION**

Moderation of assessment takes place at the key stages of the assessment process, i.e. design of tasks and marking of assignments (including consideration of results). 30% of all assignments, tests, examination and projects are subjected to moderation.

4.4.1 Internal Moderation

(1) Moderation:-Design of Assessments Moderation at assessment design stage. An official and registered moderator according to BQA standards is engaged. The principle 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 descriptor knowledge, skills and competency
- Suitability of tasks, questions, etc.

Moderation at the design stage also includes the assessors responsible for modules in the Qualification

(2) Moderation: - Marking of Assessments. Moderation at marked assessments stage: 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 students
- Overview of the moderation approach of considering the special circumstances of individual students

4.4.2 External Moderation

The key activities of the external moderation process include:

- Sampling of marked assessments, assignments, tests, projects and dissertations
- Compatibility of assessments with learning outcomes
- Scrutiny of borderline and fail cases
- 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
- Overview of the School's approach to considering the special circumstances of individual students

5.0 PROGRESSION PATHWAYS (LEARNING AND EMPLOYMENT)

Horizontal articulation of the BSc (Hons) in Software Engineering

- Level 8 BSc (Hons) in Information Technology
- Level 8 BSc (Homs) in Computer Science
- Level 8 BSc (Hons) in Computing
- Level 8 BSc (Hons) in Computer Engineering

Vertical articulation in BSc in Software Engineering may also lead to further studies

- Level 9 MSc Software Engineering
- Level 9 MSc Computer Science
- Level 9 MSc Information Technology

Diagonal Progression

Students may progress diagonally between qualifications by presenting a completed qualification or credits towards a qualification in the TVET sub-framework, and must meet the minimum requirements for admission to the target qualification.

Employment Pathways

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

- Software Engineer
- Software Technician
- Software Architect
- Software Project Manager
- Software Analyst
- Web Site Master
- Software Test Engineer
- Mobile App Developer
- Information Security
- Database developer
- Software Quality Assurance Engineer
- Information Technologist Support Specialist
- Research Scientist
- Information Technologist Educator

6.0 RECOGNITION OF PRIOR LEARNING (if applicable)

6.1 Provision for Recognition of Prior Learning RPL) will be for this qualification. Individual providers will implement RPL in accordance with relevant policies and procedures. Prospective candidates

will follow the application process set by the providers, and will be subjected to the necessary selection and assessment processes and procedures to determine if they qualify.

6.2 Credit Accumulation and Transfer System (CATS) will also be provided for, particularly for entry into the qualification. Candidates who had previously enrolled for a similar qualification and earned credits for modules completed as recognition by a recognized ETP, yet could not complete the qualification, shall be accepted. This will follow a process where their attainment will be evaluated to determine its authenticity, equivalence within the NCQF through recorded interviews, inspection of transcript or oral and practical test to determine the level of knowledge and skills acquisition for exemptions for this qualification.

7.0 QUALIFICATION AWARD AND CERTIFICATION

To qualify for award of Qualification in Software Engineering a candidate must have satisfied the following requirements

- Successfully complete the research module in a stipulated timeframe specified by the institution policy
- Has completed at least the 120 credits overall, of which 105 credits will be from the core and fundamental, while the remaining 15 credits should be from electives.
- Have official verification that he/she has covered and passed all the required modules.

8.0 INTERNATIONAL AND REGIONAL COMPARABILITY

The international and regional comparability looked at the transferability, generalization, portability, similarity and differences of the qualification with respect to other offered qualifications in software engineering on a regional and international basis. The evaluation was considered on parameters like NQF level and credits, synopsis of learning outcomes, knowledge domains software engineering according to Software Engineering Undergraduate Curriculum Development (IEEE computer Society & ACM, 2015)

Table 10.1:INTERNATIONAL COMPARABILITY

Criteria	**University of Salford Manchester**	**University of RMIT Australia**	**University of Canterbury**	**University Beaconhouse National University**
Country	United Kingdom	Australia	New Zealand	Pakstin
Title of Qualification	BSc(Hons) SE	BSc (Hons) SE	BSc(Hons) SE	BSc (Hon) SE
NQF Level & Credit Values	▪ Honours Level ▪ 460 Credits	▪ Honours Level ▪ 336 Credits	▪ Honours Level ▪ 480 credits	▪ Honours Level ▪ 130 Credits
Main Exit Learning Outcomes	The qualification is outcome based. Places more emphasis on knowledge, skills and competencies software engineering, computers and essentials, professional practice and mathematics and engineering research	The qualification is outcome based. Places more emphasis on knowledge, skills and competencies software engineering, computers and essentials, professional practice and mathematics and engineering research	The qualification is outcome based. Places more emphasis on knowledge, skills and competencies software engineering, computers and essentials, professional practice and mathematics and engineering research	The qualification is outcome based. Places more emphasis on knowledge and skills software engineering, computers and essentials, professional practice and mathematics and engineering research
Domains Covered & Credit Weight	▪ Software Eng. -110cr ▪ Computer Essentials –40cr ▪ Application Domain - 60cr ▪ Professional Practice -30cr	▪ Software Eng. - 120cr ▪ Computer Essentials – 120cr ▪ Maths and Eng.–12cr	▪ Software Eng. - 120cr ▪ Computer Essentials – 120cr	▪ Software Eng. - 32cr ▪ Computer Essentials – 47cr ▪ Application Domain - 3cr ▪ Maths and Eng. – 22cr

		▪ Professional Practice - 84cr	▪ Application Domain - 60cr ▪ Maths and Eng. – 60cr ▪ Professional Practice - 20cr	▪ Professional Practice - 26cr
Assessment Strategies	▪ Examinations ▪ Assignments ▪ Practical tests ▪ Projects ▪ Software development tasks	▪ Examinations ▪ Assignments ▪ Practical tests ▪ Projects ▪ Software development tasks	▪ Examinations ▪ Assignments ▪ Practical tests ▪ Projects ▪ Software development tasks	▪ Examinations ▪ Assignments ▪ Practical tests ▪ Projects ▪ Software development tasks
Employment Path Ways	▪ Software Programmer ▪ Software developer ▪ System administrators ▪ Computer analysts	▪ Software Test Engineer ▪ Software Analyst ▪ Software Developer ▪ Mobile App Developer ▪ Information Security ▪ Database programmer	▪ Software Test Engineer ▪ Software Analyst ▪ Software Developer ▪ Mobile App Developer ▪ Information Security ▪ Database programmer	▪ Software Engineer ▪ Software Quality Assurance Engineer ▪ Database Developer ▪ IT Support Specialist ▪ Research Scientist ▪ IT Educator
Source – URL	https://www.firstyearmatters.info/ps/SE2018.html	https://www.rmit.edu.au/study-with-us/levels-of-study/undergraduate-study/bachelor-degrees/bachelor-of-software-engineering-bp096	https://resources.sei.cmu.edu/asset_files/TechnicalReport/1990_005_001_15839.pdf	http://www.bnu.edu.pk/bnu/SCIT/ProgramsofStudy/UndergraduatePrograms/BSc(Hons)SE.aspx

Table 10.2: REGIONAL COMPARABILITY

Introductory Statement	Uganda Technology and Management University	Botho University, Botswana	University of Technology, Mauritius
Title of Qualification	BSc Software Engineering	BSc (Hons) Computing (SE)	BSc (SE)
NQF Level & Credit Values	▪ General Degree ▪ 155 Credits	▪ Honours Degree ▪ 600 Credits	▪ Honours Degree ▪ 101 Credits
Main Exit Learning Outcomes	Not Given	The qualification is outcome based. However the qualification places high emphasis on knowledge and skills in software engineering, computers and essentials, professional practice and mathematics and engineering.	The qualification is objective based and places more emphasis on knowledge, skills on software engineering, computers and essentials, professional practice and mathematics and engineering
Domains Covered & Credit Weight	▪ Software Eng. - 31cr ▪ Computer Essentials – 51cr ▪ Application Domain - 25cr ▪ Maths and Eng. – 35cr ▪ Professional Practice - 32cr	▪ Software Eng. -- ▪ Computer Essentials – ▪ Application Domain -- ▪ Maths and Eng. – ▪ Professional Practice --	▪ Software Eng. - 15cr ▪ Computer Essentials – 73cr ▪ Application Domain - 15cr ▪ Maths and Eng. – 7cr ▪ Professional Practice - 11cr
Assessment Strategies	Not Given	Not Given	▪ Written examinations ▪ Practical examinations ▪ Continuous assessment- assignments, labs, ▪ Seminar evaluation ▪ Midterm test ▪ Case Studies ▪ Project works

Source –URL	Compared Modules/Bachelor of Science in Software Engineering - Uganda Technology And Management University.html		www.utm.ac.mu/files/sthug/Qualifications/site/UG%202015/.../BSEv6_1.pdf

10.1. Comparability and Articulation of The Proposed Qualification with the ones Examined

10.1.1. Regional comparability : Similarity, Differences , Portability and Generalisation

Similarities

- All qualification emphasizes on professional practice to ensure development of competencies.
- All qualifications also offer electives as areas of further specialization in the qualifications, i.e. applied domain.
- The National Qualification Level is honours in a majority of the universities.
- All qualifications cover almost all knowledge areas in the domain of Software Engineering
- Majority of the qualifications are learning outcome and minor are objective based

Differences

- Not all software engineering qualification use the notional 10 hour learning
- The total credits awarded at the completion of the qualification are different

Contextualization

The qualification is contextualised by benchmarking the areas stated above and as follows

- The National Qualification Level shall be BQA NCQF Level 8 and is an honours degree like many regional qualifications stated
- The qualifications software engineering shall also adopt elective as means of co-opting specialization according to a majority of the universities
- The qualification software engineering shall put emphasis on professional practice to build competency in research and ensuring practical assessments in all practical modules
- The qualification shall adopt the qualifications learning outcome like a majority of the universities and this in line with the BQA NCQF.

Portability and Generalisation

The qualification based on the similarities and minor differences determined is portable and generalizable within the regional Universities. In addition the modules specified in the qualifications for the domain software engineering fall along the same guidelines and compliance according to the IEEE Computer Society and Association Computer Machinery guidelines on developing curriculum for Software Engineering Undergraduates. This also adds to the level of standardization and genera ability of the qualification software engineering.

10.1.2. International comparability: Similarity, Differences, Portability and Generalisation.

Similarities

- All qualification emphasizes on professional practice to ensure development of competencies.
- All qualifications also offer electives as areas of further specialization in the qualifications, i.e. applied domain.
- The National Qualification Level is honours in a majority of the universities.
- All qualifications cover almost all knowledge areas in the domain of Software Engineering

- Majority of qualifications use the learning outcome based approach
- Similar assessment strategies are used amongst all software engineering qualifications from the international universities
- Majority of international universities have allocated more credits to the software engineering domain

Differences

- Not all software engineering qualification use the notional 10 hour learning to calculate credits
- The total credits awarded at the completion of the qualification are different because of the credit framework used

Contextualization

The qualification is contextualised by benchmarking the areas stated above and as follows

- The National Qualification Level shall be BQA NCQF Level 8 and being an honours degree like many international qualifications stated
- The qualifications software engineering shall also adopt elective as means of co-opting specialization according to a majority of the universities
- The qualification software engineering shall put emphasis on professional practice to build competency through research and ensuring practical assessments in all practical modules
- The qualification shall adopt the qualifications learning outcome like a majority of the universities and this in line with the BQA NCQF.

Portability and Generalisation

The qualification based on the similarities and minor differences determined it is portable and generalizable within the international Universities. In addition the modules specified in the qualifications for the domain software engineering fall along the same guidelines and compliance according to the IEEE Computer Society and Association Computer Machinery guidelines on developing curriculum for Software Engineering Undergraduates. This also adds to the level of standardization and genera ability of the qualification software engineering.

REVIEW PERIOD
Every after 5 years
Other information – please add any supplementary information to help the application for this qualification for NCQF Registration.
N/A

For Official Use Only:

CODE (ID)			
REGISTRATION STATUS	**BQA DECISION NO.**	**REGISTRATION START DATE**	**REGISTRATION END DATE**

LAST DATE FOR ENROLMENT		**LAST DATE FOR ACHIEVEMENT**	