THE TANZANIA COMMISSION FOR UNIVERSITIES

BENCHMARKS FOR THE BACHELOR OF SCIENCE IN NURSING PROGRAMME

FEBRUARY 2022

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Published by:
The Tanzania Commission for Universities
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LIST OF ABBREVIATIONS AND ACRONYMS

ALP	Academic Learning Project
APHTA	Association of Private Health Practitioners in Tanzania
BScN	Bachelor of Science in Nursing
CATS	Credits Accumulation Transfer System
CBE	Competency Based Education
	Children
CLO	Course Learning Outcome
CM	Curriculum Map
CPD	Continuing Professional Development
CUHAS	Catholic University of Health and Allied Sciences
EAC	East African Community
ELO	Expected Learning Outcome
FA	Formative Assessment
FIC	Fogarty International Centre
GRE	Graduate Minimum Essential
HKMU	Hubert Kairuki Memorial University
HLI	Higher Learning Institution
ILO	Intended Learning Outcome
IUCEA	Inter-University Council of East Africa
KCMUCo	Kilimanjaro Christian Medical University College
LOs	Learning Outcomes
MBBS	Bachelor of Medicine and Bachelor of Surgery
MCHAS	Mbeya College of Health and Allied Sciences
MCQs	Multiple Choice Questions
MCT	Medical Council of Tanganyika
MD	Doctor of Medicine
Mini CEX	Mini-Clinical Evaluation Exercise
MLO	Module Learning Outcome
MoEST	Ministry of Education, Science and Technology
MoHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
MoU	Memorandum of Understanding
MUHAS	Muhimbili University of Health and Allied Sciences

NIH	National Institutes of Health
NIMR	National Institute for Medical Research
NQF	National Qualifications Framework
OBE	Outcome-Based Education
OSCE	Objective Structured Clinical Examination
OSPE	Objective Structured Practical Examination
PCT	Pharmacy Council of Tanzania
PEDP	Primary Education Development Programme
PPE	Personal Protective Equipment
QA	Quality Assurance
SA	Summative Assessment
SEDP	Secondary Education Development Programme
SLO	Students Learning Outcome
TCU	Tanzania Commission for Universities
THET	Transforming Health Professions Education in Tanzania
TLS	Tanganyika Law Society
TNMC	Tanzania Nurses and Midwifery Council
UCSF	University of California San Francisco
UDOM	University of Dodoma
UQF	University Qualifications Framework
ZMC	Zanzibar Medical Council
ZNMC	Zanzibar Nursing and Midwifery Council

ACKNOWLEDGEMENTS

The Bachelor of Science in Nursing (BScN) programme benchmarks could not have been realized if not due to dedication from nursing professionals and other experts from various institutions who conceived the idea and embarked on the work for benchmarks development. I, therefore, acknowledge several individuals from various health University institutions, health stakeholders, regulatory agents, and partners to whom I extend my most sincere appreciations for making it possible to develop these benchmarks. I would like to express my gratitude to the technical team, drawn from MUHAS, CUHAS KCMUCo (The THET consortium), and TCU for finalizing the document to its final state. I thank Professor Ephata Kaaya, Prof. Gideon Kwesigabo, Professor Eligius Lyamuya, Dr. Doreen Mloka, Professor Lilian Mselle, Dr. Nathanael Sirilli, Professor Alfred Mteta, Professor Levina Msuya, Dr. Jane Rogathi, Professor Stephen Mshana and Dr. Rose Laizer for guiding the process of benchmarks development to completion.

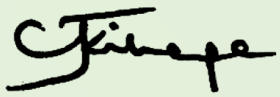
My special gratitude is extended to the Commission members for their invaluable contributions, leadership, and guidance. In particular, I wish to acknowledge the late Professor Mayunga H. Nkunya, the then Chairman of the Commission, not only for his guidance from the very beginning of the benchmarks' development process, but for initiation of the health professions transformation to Competency-Based Education in 2007/8.

The Medical Council of Tanganyika (MCT), the Tanzania Nurses and Midwives Council (TNMC), the Pharmacy Council, the Medical Association of Tanzania (MAT), the Forum of Universities and Colleges of Health Sciences in Tanzania (FUCHS - T) are highly acknowledged for their instrumental contributions in the development of the benchmarks. The former Chief Medical Officer, Ministry of Health, Community Development, Gender, Elderly and Children - Prof. Muhamad Bakari, the Permanent Secretary, Ministry of Education, Science and Technology -

Dr. Leonard Akwilapo are immensely appreciated for extending their support to facilitate the process of benchmarks development.

Last, but not at all least, I wish to extend my appreciation to Dr. Telemu Kassile (the TCU Director of Accreditation) and Dr. Kokuberwa Katunzi-Mollel (the TCU Director of Admissions Coordination and Data Management) for their tireless support to the development process of the benchmark.

I expect that these benchmarks will provide an essential building block of the harmonization of Health Professions programmes in Tanzania and the EAC Region towards creating a common East African Higher Education Area. I belief that they will be used by all stakeholders for intended purposes such as curriculum development and review, assessing graduates' competencies and comparability and quality assurance.



Prof. Charles Kihampa,
Executive Secretary, TCU

Dar es Salaam, February 2022

FOREWORD

The Tanzania Commission for Universities (TCU) is the regulatory authority for higher education in Tanzania under the Universities Act, Cap. 346 of the Laws of Tanzania. TCU has the mandate to recognize, approve, register, and accredit Universities operating in Tanzania and local or foreign university-level programmes offered by registered higher learning institutions (HLIs). TCU is also responsible for ensuring that all programmes offered in the Universities are harmonized, validated and meet the required quality standards in line with the quality assurance initiative promoted by the Inter-University Council of East Africa (IUCEA) for the East African Community (EAC) universities. In line with the spirit of promoting qquality aassurance in HLIs in the EAC, IUCEA developed "The Roadmap to Quality: A Handbook for Quality Assurance in Higher Education" to guide the development of harmonized, programme-specific benchmarks for use in universities in the region.

TCU also, has the strategic role of coordinating and regulating the development of quality curricula appropriate for the various programmes in HLIs to train competent human resources in Tanzania. Such programmes are supposed to meet the IUCEA higher education benchmarks quality standards that address the local perspectives to promote the international competitiveness of universities in the EAC region and beyond. Until now, TCU had not developed benchmarks for subject-specific health sciences programmes for the HLIs in the Country. However, there has been a long-standing drive to develop competence-based curricula in the health science disciplines to train health professionals who have the desired competence and skills to provide quality health care services, both in health care facilities and in the community. Therefore, between 2009-2011, the Muhimbili University of Health and Allied Sciences (MUHAS) through Bill and Melinda Gates grant support known as the Academic Learning Project (ALP), transformed its undergraduate and postgraduate education from the traditional input-based to competence-based programmes. Through

the NIH-supported project called "Transforming Health Professions Education in Tanzania (THET)", whose goal was to transform the educational environment for nurses to deliver quality care and improve health outcomes for Tanzanian people the existing competency-based programmes were harmonized for use by the three partner institutions in the consortium namely, the Catholic University of Health and Allied Sciences (CUHAS), Kilimanjaro Christian Medical University College (KCMUCo) and MUHAS. During the harmonization process, THET involved the relevant key stakeholders including the TCU, Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC); the Ministry of Education, Science and Technology (MoEST); the professional councils for health disciplines {Medical Council of Tanganyika (MCT), Tanzania Nurses and Midwifery Council (TNMC), Zanzibar Nurses and Midwifery Council (ZNMC) and the Pharmacy Council}. After completing the harmonization process, TCU felt it prudent to adopt the harmonized curricula as benchmarks for use across the Country's Bachelor of Science in Nursing (BScN) degree training for all University institutions in Tanzania. Subsequently, TCU will oversee development of benchmarks for other health-related disciplines (Pharmacy, Dentistry, Health Laboratory Sciences, Environmental Health Sciences, Rehabilitation Medicine Sciences, Occupational Health and Biomedical Engineering).

On behalf of TCU, I wish to encourage all stakeholders involved in training nurses in Tanzania to adopt and operationalize the BScN benchmarks. Therefore, my sincere expectation is that the University Institutions nursing professionals in the Country will use these benchmarks in all educational processes to ensure that our programmes produce nursing graduates of the expected quality.

EXECUTIVE SUMMARY

The Benchmarks for Bachelor of Science in Nursing (BScN) contained in this document were developed as milestones for harmonizing the Tanzania higher education programmes and precisely the health sciences programmes. The document is essential in the Tanzania Quality Assurance Framework and to further contribute to the development of the National Quality Assurance Framework (NQF) and the implementation of the University Qualifications Framework (UQF) but at the regional level will contribute to the East African Common Higher Education Area in Health Sciences.

The BScN programme is closely related to other health science programmes, and has some commonalities with other health professions programmes, thus, the benchmarks for the BScN programme benchmarks should also provide a template and guide the development of other health professions' programmes benchmarks at the university level in Tanzania.

The benchmarks further, provide means for the academic community to describe the nature and characteristics of programmes in the nursing discipline. They further describe general expectations on standards for the award of a BScN qualification and articulate the attributes and capabilities that graduates possessing such qualifications should be able to do. In addition, they address the level at which the undergraduate qualification for nursing might be placed within the University Qualifications Framework (UQF) in Tanzania. The benchmarks include expressions of the professional/employment-related abilities that graduates in nursing would be expected to have developed during their higher education and associated practice-based experiences. These align with the professional abilities expected in the undergraduate degree descriptor within the UQF.

The BScN benchmarks will be used for several purposes, foremost, as important source of reference for higher education institutions when

new nursing undergraduate programmes are being developed or reviewed. They provide general guidance for articulating the learning outcomes associated with the BScN, but they do not specify a detailed undergraduate nursing degree curriculum. They provide flexibility in designing new programmes or revision of ongoing programmes and encourage innovations within an agreed overall framework. The benchmarks also provide support to institutions in pursuit of internal quality assurance. They enable the learning outcomes specified for the programme to be reviewed and evaluated against agreed general expectations and standards.

The benchmarks may also be one of several external reference points drawn upon for external review of the BScN programme. Reviewers should, however, not use the benchmarks as a simple checklist for these purposes. Instead, they should use them in conjunction with the relevant programme specifications and the health professions' University Institution's internal evaluation tools to allow reviewers to come to a sound judgment based on a broad range of evidence. Thus, the main objective of benchmarks is to harmonize the BScN programme by providing a baseline for comparability of the undergraduate nursing degree programmes in the country and to ensure relevancy of the programmes. The benchmarks will also be used as yardstick or a point of reference and not as absolute standards. This benchmarks document is organised in three parts: -

(i) **Part 1** describes the background, objectives, and justification for the formulation of the benchmarks. It also articulates the development process and formulation of the benchmarks.

(ii) **Part 2** shows the relation between the benchmarks and the Qualification Frameworks, the Curriculum, and the link with Quality Assurance.

(iii) **Part 3** presents the benchmarks for the Bachelor of Science in Nursing (BScN) programme.

PART 1: INTRODUCTION

1.1 Background

Tanzania Commission for Universities (TCU) is mandated to maintain high and comparable academic standards in Higher Education in Tanzania, emphasizing Quality Assurance (QA) and Quality Management. Thus, TCU, among others, is mandated to Standardize, recognize, and equate degrees, diplomas, and certificates conferred or awarded by foreign institutions and local institutions; and establish and maintain a qualifications framework for universities. [1]

TCU aspires to operate within stakeholders' expectations in delivering regulatory functions that enhance and harness QA in Tanzania. The concept of QA in University Institutions is of immeasurable concern among all stakeholders in Tanzania, including the policymakers, parents, employers, and students.[2] · This importance rests on the fact that Tanzania has experienced a rapid expansion of university institutions and rapid growth in universities and colleges' enrolment levels in recent years. This was triggered by the exponential increase in demand for higher education due to the successes scored in the Primary Education Development Programme (PEDP)[3] and Secondary Education Development Programme (SEDP). [4] This rapid growth of enrolment levels in the Universities has been experienced across the board, including health sciences University institutions.

Given this situation, TCU felt the need to ensure that the rapid expansion of higher education[5] did not compromise the quality of the very Education delivered. In recent years student mobility in East Africa has increased, creating the need to institute mechanisms for

[1] URT (2005). The Universities Act No 7, 2005. Dar es Salaam MHEST, 2005 (Section 5(1) (f),
[2] Mosha H: The State and Quality of Education in Tanzania: A Reflection. University of Dar es Salaam
[3] URT, Education Sector Development Programme, Primary Education Development Plan (PEDP) I-2000-06, PEDP II 2007 - 11, PEDP III 2012-16.
[4] URT, Education Sector Development Programme Secondary Education Development Plan (SEDP) 2004 – 2009.
[5] Laiser S: An Assessment of Factors Influencing Mushrooming of Private Higher Learning Institutions in Tanzania: A Theoretical Perspective. Tanzania Journal of Education, 3: 112-125, 2017.

harmonization and comparability of the quality of education in universities in the region. There is, therefore, a reason to enhance efforts for safeguarding and maintaining international quality standards in Tanzania to support similar efforts in the East African Common Education Area. In Tanzania, the measures are addressed and implemented in collaboration with national and International Quality Assurance frameworks, making benchmarks a necessity.

The Inter-University Council for East Africa (IUCEA) championed and developed the first regional benchmarks on the Bachelor of Business-related studies within the East African Region. Based on the experiences with the benchmarks for Business-related studies in the region, the IUCEA took the initiative to develop benchmarks for the Bachelor of Computer Science and the Bachelor of Information Technology through the Regional Quality Assurance Initiative framework.[6] Using the regional experience in formulating benchmarks, TCU initiated the Bachelor of Science in Nursing (BScN) programme benchmarks for Tanzania.

The objectives of the formulated benchmarks are to:

(i) Act as guide and tools for the Tanzania Health Science Colleges and Universities in designing the BScN and other health science programmes.
(ii) Enable the TCU and other stakeholders to assess the quality of the BScN and other health Science Programmes
(iii) Promote harmonization of the BScN programme across the country.
(iv) Support staff and student mobility within Tanzania and in the East African Region.
(v) Support the nationalization and regionalization of the labour market, as one of the East African Community (EAC) common Higher Education Area aims.
(vi) Guide the labour market in judging the quality of the graduates.

[1] URT (2005). The Universities Act No 7, 2005. Dar es Salaam MHEST, 2005 (Section 5(1) (f),
[6] Inter-University Council for East Africa – Benchmarks for The Bachelor of Computer Science and the Bachelor of Information Technology Programmes. IUCEA, 2015.

The document focuses on benchmarking in terms of the outputs rather than the process. This means focusing more on Expected Learning Outcomes (ELOs) rather than the details of the content of the programmes. The outcomes or competency approach was chosen because of the need to harmonize the nursing and other health professions' training programmes in Tanzania, and to match with the rest of the world, where health professions' education for a long time has been outcomes or competency based. The process of ensuring commensurate content, pedagogy, and assessment to achieve the ELOs is left to the individual Health Science Universities and Colleges to determine.

1.2 Justification

Since its establishment, TCU initiated a reform process to reposition itself to address its mandate within the Country. Such reforms became necessary and urgent by enacting the Universities Act No. 7 of 2005.[1]. The reforms prompted the need to establish an appropriate environment for the harmonization of higher education systems. Among the essential steps towards harmonization of higher education in Tanzania was the setting up of the Universities QA systems, namely the Universities Qualifications Framework (UQF) of 2012 [7] and Quality Assurance – General Guidelines and Minimum Standards for Provision of University Education in Tanzania in 2014. [8]

In retrospect, the IUCEA, through efforts to harmonize Quality Assurance (QA) in higher education in the region, developed a Quality Assurance Handbook - the 'Road Map to Quality (2010) in four Volumes, which is a guide towards developing QA systems and culture in universities in East African Partner States. [9] Considering the above, it was deemed necessary to develop the BScN degree benchmarks that the

[7] Tanzania Commission for Universities (TCU). University Qualifications Framework (UQF). First Edition. Dar-es-Salaam (2012).
[8] Tanzania Commission for Universities (TCU). Quality Assurance – General Guidelines and Minimum Standards, 2014.
[9] The Inter-University Council for East Africa (IUCEA). (2010). A *Road map to Quality. Handbook for Quality Assurance in Higher Education.*

Health Science University institutions in Tanzania should use to benchmark the development and review of their programmes. Based on the available knowledge and skills of the benchmarks developed by IUCEA, TCU decided to create the BScN programme benchmarks as per learning outcomes. These benchmarks are needed because learning outcomes should guarantee: -

(i) Comparable quality levels of the nursing graduates,
(ii) Comparable chances for the nursing graduates in the labour market.
(iii) The labour market understands the competencies that nursing graduates possess.
(iv) Increased national and international mobility of students and academic staff.

1.3 The development process

The development of the benchmarks for the BScN programmes underwent an interactive process that included data collection, analysis, and documentation. A consultative meeting was then held in February 2019, bringing together all health sciences stakeholders in a preparatory meeting and round table sessions to deliberate on the content of the benchmarks as follows: -

(i) The Stakeholders' Engagement Meeting: 21-22 February 2019

The First Stakeholders' Engagement Meeting was conducted at MUHAS from 21st to 22nd February 2019. The meeting was organized by the consortium of the Transforming Health Education Professions Education in Tanzania (THET) project, which is a MUHAS, KCMUCo and CUHAS consortium funded by the Fogarty International Centre (FIC) of the National Institutes of Health (NIH), USA. The THET consortium organized the first stakeholders meeting to inform all stakeholders about the curricula transformation process and harmonized health profession programmes in Tanzania. This was partly driven by the call from the society and stakeholders after noting differing competencies among health professionals graduating from different University institutions in Tanzania.

The participants were stakeholders from all health professions university academic institutions in the Country, professional bodies, employers, TCU, IUCEA, National Institute for Medical Research (NIMR) and Health Professional Councils, the Teaching Hospitals, the students' Governments from MUHAS, CUHAS and KCMUCo, the Ministry of Education Science and Technology (MoEST), the Ministry of Health, Community Development, Gender the Elderly and Children (MoHCDGEC), Christian Social Services Commission, the Association of Private Health Practitioners in Tanzania (APHTA), the Tanganyika Law Society (TLS), the University of California at San Francisco (USA), and Duke University (USA).

The first meeting agreed and accepted the need to have harmonized programmes for health professions, starting with the MD/MBBS and BScN programmes as the benchmarks for other health professions programmes. To make sure the efforts are sustained the stakeholders and particularly the Health Sciences Colleges and universities agreed to collectively work together to develop pedagogy skills to academic staff, to enable them to implement the developed harmonized competency-based programmes.

(ii) Stakeholders Workshops on Curriculum Development, 24th July 2019

The 2nd Stakeholders meeting was held at MUHAS on 24th July 2019 and developed benchmarks for BScN programme in line with the UQF harmonization of the programmes in the Country. Specifically, the objective of the 2nd stakeholders meeting was to receive ideas from stakeholders regarding the basic minimum competency requirements and learning outcomes our Medicine and Nursing graduates should have upon graduation from all Nursing Schools/Faculties in the Country through the harmonization of curricula. The meeting also aimed at receiving guidance, thoughts, ideas on our Medical and Nursing schools' minimum requirements that will be developed and included in the harmonized programmes to be used as benchmarks for all other health professions programmes in the Country.

The meeting was attended by stakeholders from all Health professions Universities and Colleges in Tanzania, the TCU, MoEST, MoHCDGEC, Tanzania Medical Device and Drug Authority (TMDA), Medical Council of Tanganyika (MCT), Tanzania Nursing and Midwifery Council (TNMC), Zanzibar Nursing and Midwifery Council (ZNMC), Pharmacy Council of Tanzania (PCT), Teaching Hospitals, among other stakeholders. During the second meeting, and to be more efficient, the participants were divided into nine groups. Each group was given time to discuss the nine areas that constituted the nine (9) Competency Domains for BScN programmes. These domains were developed by faculty from the THET project partner institutions, namely MUHAS, KCMUCo and CUHAS, in a curricula-mapping workshop that was conducted a week before the stakeholders' engagement workshop. In the end, the stakeholders meeting refined and agreed on the Nine Domains of Competency for the BScN programmes and the sub-competencies as the Graduate Minimum Essential (GRE) requirements. The agreed Competency Domains are: -

(i) Professional Knowledge
(ii) Practical/Clinical Skills
(iii) Relationships with Patients, Clients and Communities
(iv) Communication Skills
(v) Intra and inter-professional practice and collaboration.
(vi) Maintaining Good Practice
(vii) Working within the System and Context of Health
(viii) Professionalism
(ix) Scientific Inquiry and critical thinking (Problem Solving)

Therefore, the output of the second stakeholders' workshop was an initial draft skeleton with programme goal, objectives, expected programme learning outcomes, Competency Domains, and sub-competencies for each. The workshop resolved that under the guidance of the three THET institutions' experts and curricula development

groups, the institutions should continue developing a draft generic curriculum before the next stakeholders meeting.

(iii) Stakeholders' Meeting for Curriculum Development, 4th March 2020

The third Stakeholders meeting was held on 4th March 2020 at MUHAS. The meeting aimed to solicit inputs and suggestions from stakeholders on the draft generic harmonized BScN programme. Participants were from the three THET collaborating institutions, one participant from UCSF, representatives from all other health professions training institutions currently running BScN programmes, higher education regulatory authorities, and health sciences professional councils. During this meeting, stakeholders discussed and provided inputs to the draft generic harmonized curriculum for the BScN programme. This process was guided by the gap analysis and curricula mapping whereby the programme content areas and descriptions, courses and modules, fieldwork, and elective period benchmarks were refined.

At the end of the 3rd stakeholders' meeting, the stakeholders had a clear structure of how the BScN programme benchmarks will be like and resolved to allow the THET group and their curricula committees to finalize the harmonized programme benchmarks. The stakeholders who participated in the development process commended the THET consortium institutions for this initiative. They were confident with the eventual outcomes because the development process adhered to the basic principles of designing and developing curricular. Stakeholders emphasized the need for these programmes to be the benchmarks for all other health professions programmes in the country.

After the meeting, the THET group and curricula development experts finalized the harmonized generic programme for BScN. Also, each consortium institution used the harmonized generic programme to develop institutional specific programmes ready for approval and accreditation. All other health professions institutions will use the

generic BScN programme as benchmark for developing first-degree nursing programmes in Tanzania.

(iv) Final Stakeholders Meeting for deliberating on the Benchmarks

The third and final stakeholders meeting was convened at the LAPF International Conference Centre - Dar es Salaam, on 30th September 2021. The objective of the meeting, which was jointly facilitated by the THET Consortium and TCU, was to deliberate on the draft Bachelor Degree Programme benchmarks for Doctor of Medicine and Bachelor of Science in Nursing. After receiving the draft benchmarks from the working group, the meeting participants discussed the benchmarks in groups, identified areas that needed further improvements and presented their groups' suggestions in a plenary discussion. The plenary discussion format was designed to make sure each suggestion, addition or alteration was in line with the principles of benchmarks development and important to guide universities in programmes review or development.

The meeting was attended by stakeholders from the THET Consortium, representatives from Health Professions University Institutions in Tanzania mainland and Zanzibar, Representatives from TCU, Medical Council of Tanganyika (MCT), Zanzibar Medical Council (ZMC), Tanzania Nursing and Midwifery Council (TNMC), and Zanzibar Nursing and Midwifery Council (ZNMC).

After a whole day's meeting, the stakeholders adopted the benchmarks and agreed on the final inputs, corrections and refinements and requested the benchmarks working group to refine and produce the final version.

PART 2: THE BENCHMARKS AND QUALIFICATIONS FRAMEWORK

2.1 The Qualifications Framework

The BScN programme benchmarks in this document provide a national standard for programmes learning outcomes. Development of the benchmarks has ensured that they are in line with the TCU University Qualifications Framework (UQF) of 2012.[7] The UQF defines higher education levels from level 6 to 10, where the BScN programme is at level 8 for bachelor's degrees as an outcome-based framework. Each level has a descriptor that sets in broad generic terms its associated outcomes. However, the benchmarks document will not replace the UQF but rather complement it as a tool to translate the framework into practical terms.

From the level 8 descriptor of the UQF, the holder of a BScN degree should be able to apply knowledge, skills and attitudes in a comprehensive and unpredictable variety of contexts with substantial personal responsibility for the work of others and responsibility for the allocation of resources, policy, planning, execution and evaluation. The latter circumstances must include those within the medical and health sector in general and those beyond the health sector but have consequences on the healthy wellbeing of the society.

2.2 The benchmarks and curriculum design

The purpose of the BScN benchmarks is to support the Schools/Faculties of Nursing in Health Sciences University institutions in Tanzania to develop or review their BScN degrees programmes. When designing the BScN programme, one should use, at the minimum, the generic descriptors indicated in the UQF but in line with the requirements of the nursing profession. Also, institutions should consider the dynamic nature of technology and advances in science in

[7] Tanzania Commission for Universities (TCU). University Qualifications Framework (UQF). First Edition. Dar-es-Salaam (2012).

developing their BScN programmes. The latter will require the production of competent graduates who can respond to the rapidly ever-changing health demands at both national and global levels. The graduates should be able to manage specific nursing and other health-related problems within their context and provide broader solutions to threats that may affect health but originate from other multilateral sectors. This, therefore, calls for the BScN to be an Outcome-Based Education (OBE) programme.

Further, while addressing the context-specific needs, the programmes must be geared to generate competent graduates who meet the global standards set by international authorities in nursing sciences. Ensuring that the preceding is achieved, the BScN curriculum should be organized at a minimum of nine (9) competency domains. These are:

(i) Professional Knowledge.
(ii) Practical/Clinical Skills.
(iii) Relationships with Patients, Clients and Communities.
(iv) Communication Skills.
(v) Intra and inter-professional practice and collaboration.
(vi) Maintaining Good Practice.
(vii) Working within the System and Context of Health.
(viii) Professionalism.
(ix) Scientific Inquiry and critical thinking (Problem Solving).

These competency domains should then be translated into learning outcomes that target the three levels of the learning hierarchy of cognitive, psychomotor and affective domains at the programme, course, module and topic levels, as will be detailed in the advancing sections.

2.2.1 Programme objectives

Programme objectives are broad statements that describe the career and professional accomplishments that the Programme is preparing graduates to achieve. Therefore, the BScN programme should be designed to address the concerns of different stakeholders, from

students to employers. This fact should be reflected in the programme objectives. The objectives of the BScN programme can be grouped to address three broad areas: -

(i) Academic ability of the BScN graduates.
(ii) Employability of the BScN graduates.
(iii) Personal development in the profession.

Before 2011 Health Science University institutions in Tanzania had well-articulated programme objectives. Still, none had well-set programme outcomes, and most did not define the difference between "programme objectives" and "programme outcomes". Programme outcomes are the knowledge, skills, and attitudes (attributes) the graduate of a medical degree programme should have. Programme objectives deal with the general aspect of graduation for a particular programme and the competencies and expertise a graduate will possess after completion of the programme. These are usually broad and cover a wider area than course outcomes. [10]

In 2011/12, MUHAS transformed its academic programmes, and through the involvement of educational experts, programme objectives and programme outcomes were defined. The BScN programme objectives and outcomes should therefore be translated into Student Learning Outcomes (SLO's), i.e., what students should *know, do, or value* after completing the programme. Therefore, the programme objectives should prepare nursing students with the knowledge, skills, attitudes, and behaviours appropriate and necessary for performance and empathy in their nursing careers. The objectives are defined by the core competencies of the graduates grouped in the nine (9) domains of Competency or Core Competencies mentioned earlier.

2.2.2 Formulating the Expected Learning Outcomes (ELOs)

After defining the programme objectives and competency domains, the next step in designing or redesigning the BScN programme is developing the Expected Learning Outcomes (ELOs). The ELOs describe clearly what the learner is expected to demonstrate after completing

the whole programme (Programme Learning Outcomes – PLOs), course (Course Learning Outcomes – CLOs), a module (Module Learning Outcomes -MLOs) or even a topic. In other words, the LOs can be at the level of the programme, course, module, unit, or a topic in the programme and even a lecture. [10, 11, 12, 13]. Nursing Schools and Faculties are expected to compare their formulated LOs with these benchmarks and see what is missing or need to be rephrased during programmes development and review. For the LOs, the institutions should describe how the outcome will be measured and assessed. The BScN programme benchmarks are based on the formulated LOs.

Broadly, LOs are defined as statements of what a learner *knows, values and can do* on completing a learning process and grouped in terms of *knowledge, skills, and attitudes*. Competence or Competency is the proven ability to use knowledge, skills, personal, social, and methodological skills in work or study situations, and professional and personal development. [10, 11, 12, 13] A graduate exhibiting competence at the workplace will have partly acquired the competencies as outcomes of his/her study. It should be noted that some of the competencies are developed through non-formal and informal experiences, and others are inborn. This means that not all competencies are taught at Colleges and Universities. The LOs constitute only a part of the competencies a graduate will show in his/her job.

Although universities define objectives and measure outcomes for the BScN programmes in one form or another, many do not approach the process of formulating LOs in a uniform and systematic way. It is important to note that focusing on and defining LOs for the

[10] Harden RM: Learning outcomes and instructional objectives: is there a difference? Medical Teacher, 24, (2), 2002, 151–155.
[11] Noghabaei G, Arab M, Ghavami B, Hosseini-Zijoud S-M: Expected learning outcomes of medical school graduates. Journal of Advances in Medical Education (JAMED) 3, 2016.
[12] Thorsson I: Formulating Learning Outcomes. Karolinska Institute, 2007.
[13] Kennedy D, Hyland A, Ryan N: Writing Learning outcomes: A practical Guide. Implementing Bologna, 1-115, 2007.

undergraduate nursing degree programmes would create an opportunity [14] to: -

(i) Enhance nursing students' learning and mobility.
(ii) Guide lecturers and instructors.
(iii) Identify and overcome barriers to effective teaching.
(iv) Facilitate collaboration among nursing schools and faculties in the country, the region and beyond.
(v) Improve nursing students' learning, retention completion.
(vi) Produce quality nursing graduates; and
(vii) Increase nursing graduates' chances for employability.

Therefore, in these benchmarks, LOs for the BScN degree programme are defined as what a nursing student is expected to *know, do and value* after a learning experience and *how well* the student should be expected to achieve those outcomes. LOs state both the *substance of learning* and *how its attainment is to be demonstrated.* LOs can be re-organized in three domains of teaching and learning hierarchy: -

(i) Cognitive learning (Knowledge)
(ii) Psychomotor learning (Skills)
(iii) Affective learning (Attitudes),

In Bloom's taxonomy[15,] the teaching and learning hierarchy is essential for the correct and consistent building of the knowledge side of the LOs. The cognitive domain comprises six levels starting with the lowest level, **remembering,** and ending at the top, **creating** the most complex taxonomy level (**Figure 1)**. Thus, when formulating the **ELO's**, one must make them using *Action Verbs*, starting at the lowest level of the taxonomy upwards **(Figure 2).**

[14] Mahajan M and Sarjit-Singh MK: Importance and Benefits of Learning Outcomes. *IOSR J. of Humanities Social Science (IOSR-JHSS 22(3), 65-67. 2017*

[15] Bloom BS, Engelhart MD, Furst EJ, Hill W h, & Krathwohl DR: Taxonomy of educational objectives: the classification of educational goals; Handbook I: Cognitive Domain New York, Longmans, Green, 1956.

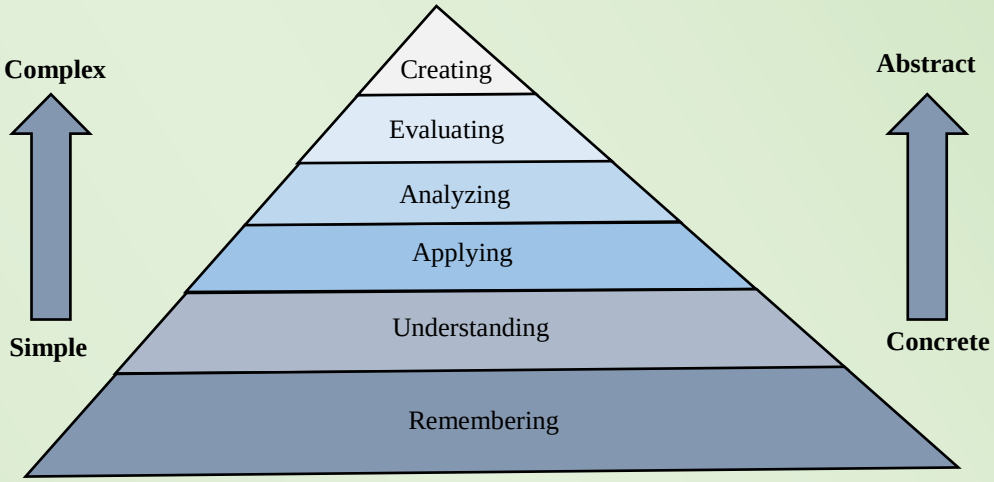


Figure 1: Revised Taxonomy of Bloom (Anderson and Krathwohl 2001)[16]

[16] Anderson LW, Krathwohl DR, Airasian PW, Cruikshank KA, Mayer RE, Pintrich PR, Raths J, & Wittrock MC: A taxonomy for learning and teaching and assessing: A revision of Bloom's Taxonomy of Educational Objectives (Complete edition). New York: Longman, 2001

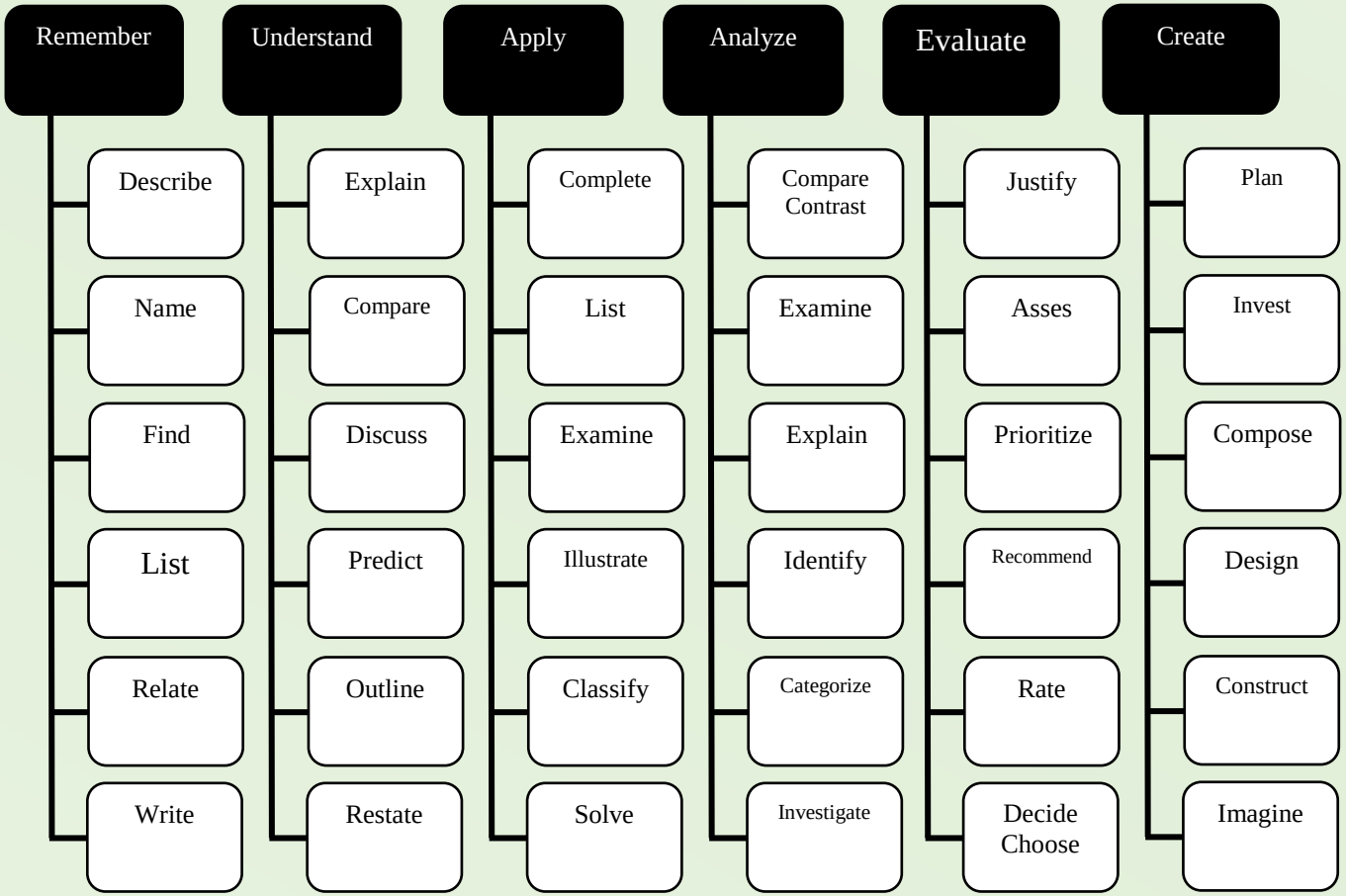


Figure 2: Action words for the cognitive domain [16]

2.2.3 Translating learning outcomes into the Programme

After formulating the LO's, the next step for the BScN curricula developers is to identify the relevant courses required to achieve the learning outcomes. These will include the core courses or subjects, optional courses or subjects as applicable, and a clear distinction between the two. The core courses should typically not be less than 80% of the curriculum. When the curriculum has core and optional courses, the LO's to be achieved must be stipulated for each type of course. Developers should also establish which new courses should be added in addition to what exists in the current programme; or which existing courses or subjects should be replaced. Each planned course shall have **course, module, and topic** learning outcomes aligned to the BScN programme Learning Objective and Learning Outcomes. The courses, modules and topics should indicate how and when each learning outcome will be attained.

The alignment matrix should detail the formulated CLO's for each course. This will help to determine how the course contributes to the PLO's and also determine the MLO's and how the module contributes to the CLO's. There should be clear evidence that the work students are doing in one or more classes directly supports student achievement of the intended learning outcomes for the programme. The alignment of PLOs and curricula is critical. If statements of SLOs are adopted but are not addressed in the curricula, the outcomes assessment process will be worthless. To ensure that the planned courses cover all the learning outcomes, the curriculum developers should design a curriculum alignment matrix as exemplified in **Table 1.**

Table 1: An Example of Curriculum alignment matrix for BScN programme

Learning outcome	Course 1	Course 2	Course 3	Course 4	Course 5
Communication skills	**X**				**X**
Critical thinking and Scientific Inquiry			**x**	**x**	
Interprofessional collaboration		**X**			
Working within systems					
Professional knowledge	**X**		**X**		
Professionalism				**x**	**x**

2.2.4 Programme description

The LO's for the BScN programme are provided in these benchmarks. Universities and Nursing Schools/Faculties should develop the programme courses starting with formulations of the LO's for the specific course, referred to as the backward design of a curriculum. Each course in the programme should have a clear description. The programme should assess whether students are achieving the learning outcomes in each course. To ensure this, decision on how each learning outcome is assessed must be included in the courses and modules description. An example of a course description is shown in **Appendix 2**.

2.3 Quality Assurance

These benchmarks provide critical milestones for developing and harmonizing the BScN programme. This is an essential step for ensuring that all Nursing graduates in the Country are trained and equipped with the same level of learning and have achieved comparable learning outcomes and competence. Although each higher learning university institution and Nursing School/Faculty may have its criteria for formulating outcomes and assessing the quality of the nursing training programme, the benchmarks will play a pivotal role in harmonizing the quality of assessment and quality assurance of the BScN degree in the

Country. TCU and TNMC/ZNMC will align their standards with these benchmarks. For Health Science Universities, Colleges and Nursing Schools in the Country, the benchmarks provide a good tool for evaluating their nursing students' training programmes.

2.4 Implementation of the Benchmarks

The BScN benchmarks will be implemented by the HLIs offering the programmes under the oversight of TCU. The programme design into courses, modules, or unit systems lies with the authority of the HLIs without distorting the **competency domains**, **the competencies and learning outcomes** described in the benchmarks. TCU will provide the overall oversight, coordination, and evaluation of benchmarks implementation.

2.5 Review of the Benchmarks

Under the guidance of the TCU and the TNMC/ZNMC, the BScN benchmarks shall be reviewed after every six (6) years to address the dynamic nature of health problems and global standards.

PART 3: BENCHMARKS FOR A BACHELOR OF SCIENCE IN NURSING

3.1 Description of Bachelor of Science in Nursing (BScN) Programme

Nursing is both an art and a science – a caring profession with a continuously expanding body of knowledge. The programme provides the graduates with intellectual skills such as problem-solving, critical thinking, clinical decision-making, analysis, reflection, problem-solving and clinical-reasoning, plus soft skills such as professionalism, communication, leadership and teamwork.

The programme should be designed to facilitate the application of evidence-based practice to assist individuals, families and communities in achieving optimal functioning, consistent with the delivery of safe and quality nursing care in various healthcare settings. The programme should be designed to facilitate the acquisition of different nursing caring theories, models and approaches, including patient-centred and holistic care. In addition, the nursing process should be the central focus when providing care to patients, clients and the community. Graduates of this programme will take up positions such as nursing officers, managers, clinical instructors, researchers, educators.

To achieve what is explained above, the programme should include a minimum of essential core competencies required for the graduate to have achieved after completion of training. The programme should address the intended students learning outcomes (output) instead of what students are taught (input). The BScN is thus a Competency-Based Education (CBE) programme, which clearly defines the Intended Learning Outcomes (ILOs), and all are arranged in three domains of learning, i.e., knowledge, skills and attitudes. The learning outcomes inform the programme designers and directly align with *learning activities* and *assessment methods*. The BScN programme should be

designed to stimulate students to engage deeply in learning activities by establishing high challenging standards of performance.

The programme should meet global standards of nursing education, which will enable students to acquire competence in the nine core competency domains of the programme._The programme is based on the philosophy of the nurse as a reflective, lifelong learner and service to others. The whole learning process is learner-centered and mastering the pre-defined competencies and core skills occur in a circular context leading to a graduate nurse who is a competent care provider, change agent, leader, manager, educator, communicator and decision-maker **(Figure 3).** It emphasizes the importance of integrating theory and practice, which should be holistic, patient-centered, respectful and evidence-based. The teaching/learning and assessment strategies employed in the course should be congruent with andragogy principles; that is, teachers and learners bring existing competencies (relevant knowledge, skills and attitudes) to contribute to a mutually educative process.

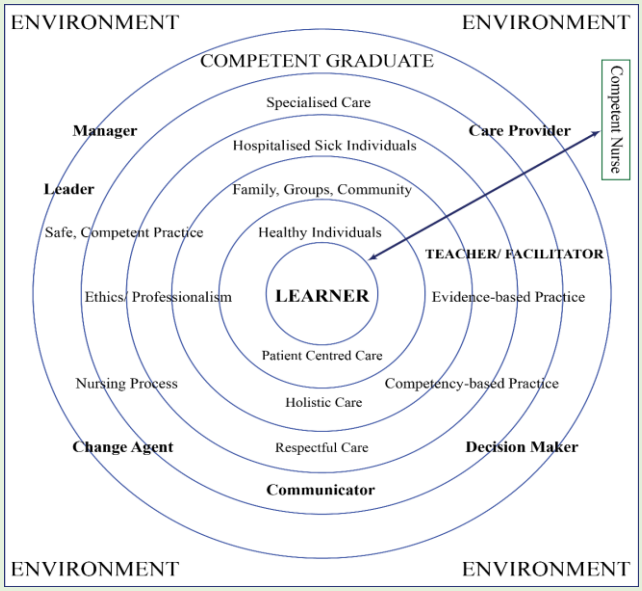


Figure 3. The Philosophical conceptual framework for the integrated, competency-based curriculum [17]

[17] WHO: Three-Year Regional Prototype Pre-Service Competency-Based Nursing Curriculum, 2016.

3.2 Programme goals

The goal of the BScN programme is to produce competent Nursing graduates capable of working independently for the provision of quality holistic client-centred nursing care to meet the needs/expectations and to promote, maintain, and restore the health of individuals, families, and communities nationally and internationally.

3.3 Programme objective (Programme Learning Outcomes – PLOs)

The BScN Programme should be designed in such a way that it addresses the concerns of different stakeholders. This will be achieved through grouped programme objectives as follows: -

3.3.1 Academic ability

The BScN programme objectives should equip learners with: -

(i) Knowledge, skills, and behaviours appropriate and necessary for addressing nursing problems.

(ii) Knowledge skills and attitude for practicing nursing at the highest standards, serving all individuals and societies to pursue health.

(iii) Knowledge and ability to practice independently, including in rural health facilities.

(iv) Ability to work in teams for interprofessional collaborative practice providing holistic care and solving nursing practice challenges.

(v) Ability to practice nursing science by creating new knowledge for improving health locally, nationally, regionally and globally.

(vi) Knowledge and the ability for practicing ethically, according to nursing professionalism and adherence to legal provisions.

(vii) Knowledge and ability to put the patients nursing care and health needs first in every situation.

(viii) Ability to conduct nursing research to inform medical practice and policy.

(ix) Ability to effectively practice in various health care delivery settings and systems (hospitals, ministries, NGO's, communities, industry).

3.3.2 Employability

Nursing Education should produce nurses able to respond to changing nursing care needs. BScN programme should, therefore, ensure that the graduates are fit for practice and fit for purpose. The BScN programme objectives are to equip learners with: -

(i) Current nursing practice skills for the different nursing care facilities in Tanzania.
(ii) Ability to intergrade nursing profession knowledge and practice to perform effectively and efficiently in all nursing and other health facilities.
(iii) Skills for solving nursing care and health-related problems for patients and the community.
(iv) Analytical skills to understand the outcomes of nursing practice to individuals, the community and the Country.
(v) Knowledge and skills that allow creativity, innovativeness and entrepreneurship in nursing and midwifery practice.
(vi) Ability to communicate effectively with nursing clients, nursing colleagues and other health caregivers.

3.3.3 Trainee personal development

The advancements in technology for health and nursing sciences require well-qualified nursing graduates with appropriate knowledge and skills to fulfil the changing nursing profession requirements. Continuing Professional Development (CPD) allows systematic acquisition and maintenance of knowledge and skills necessary for nurses to execute their duties effectively in line with the advancement in the nursing sciences. Therefore, the undergraduate nursing programme objectives are to: -

(i) Prepare learners for continuing improvement, self-evaluation and life-long learning.
(ii) Prepare learners to advance and make progression in their nursing career.
(iii) Equip learners with the nursing profession attitudes, ethics and values.

(iv) Prepare learners to develop cultural sensitivity, skills and attitudes for working in multicultural environments.
(v) Prepare learners with knowledge and skills to allow them to work in nursing and other health professional teams.
(vi) Equip learners with knowledge and skills for improving results and learning and skills-seeking behaviours and encourage these behaviours in others.
(vi) Ability to appreciate oneself as a nurse with positive attitudes toward professional nursing and lifelong learning and research.
(vii) Ability to progress in their career with skills and attitude for working in multicultural and global environments.

3.4 Expected Competencies and Learning Outcomes (ELOs)

To harmonize the Nursing Education in the Country, the LO's described below were formulated as benchmarks f1or all nursing schools and faculties. The BScN programme should have at least nine broad competency domains, which include Knowledge; Clinical/practical skills; Communication skills; Relationships with Patients, Clients and Communities; Intra and inter-professional practice and collaboration; Maintaining Good Practice; Working within the System and Context of Health Care; Professionalism, and Scientific Inquiry and Critical thinking.

Each of these broad competency domains should have a minimum of three (3) and a maximum of nine (9) LO's. The LO's should be written using action verbs [12,18,] associated with higher-order learning of the revised Bloom's taxonomy [15] levels to promote learners critical thinking skills, as shown in **Figure 4**. The ELO's described for the undergraduate

[12] Thorsson I: Formulating Learning Outcomes. Karolinska Institute, 2007.
[13] Kennedy D, Hyland A, Ryan N: Writing Learning outcomes: A practical Guide. Implementing Bologna, 1-115, 2007.
[15] Bloom's et.al., Taxonomy of educational objectives: the classification of educational goals; Handbook I: Cognitive Domain New York, Longmans, Green, 1956.
[16] Anderson LW, Krathwohl DR, Airasian PW, Cruikshank KA, Mayer RE, Pintrich PR, Raths J, & Wittrock MC: A taxonomy for learning and teaching and assessing: A revision of Bloom's Taxonomy of Educational Objectives (Complete edition). New York: Longman, 2001
[18] Bruner J: The process of Education. Cambridge, MA: The President and Fellows of Harvard College, 1960.

nursing degree programme are the threshold which all graduates must achieve **(Appendix 1).**

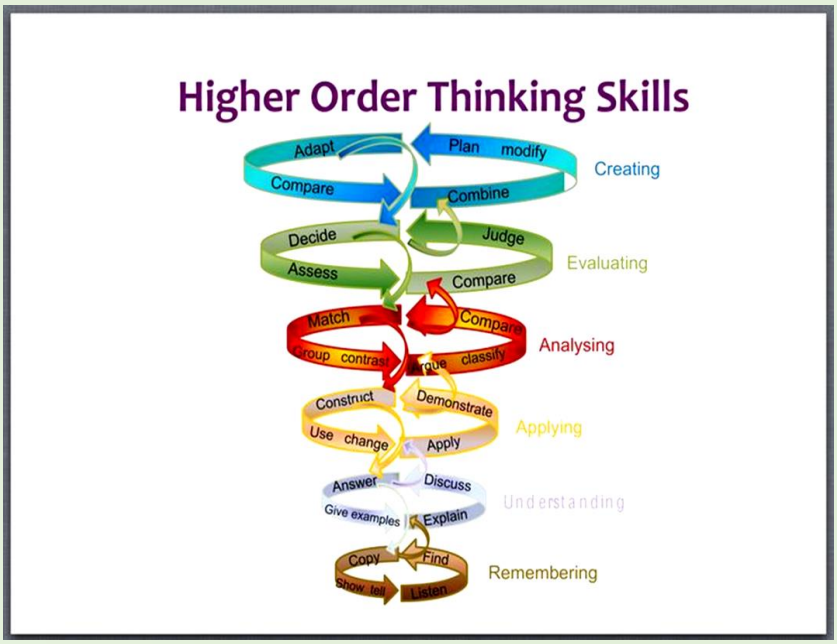


Figure 4. Revised Blooms Taxonomy [15]

In addition, BSc Nursing programmes should ensure that the learning outcomes are developed for all three domains of learning, namely Knowledge, Skills and Attitudes required for nursing practice. Each learning outcome should be aligned with the teaching/learning method and assessment criteria. [13,19] **Table 2** outlines the expected LOs for the BScN programme in Tanzania.

[19] Hoque EM: Three Domains of Learning: Cognitive, Affective and Psychomotor. JEFLER, 2: 45-52, 2017

Table 2: Example of Competency Domains, Domains of Learning, and Expected Learning Outcomes aligned with Teaching/Learning Activities and Assessment Criteria.

Qualification Category		Undergraduate			
Qualification Type		Bachelor of Science in Nursing			
Level		8			
S/N	**Competency Domain**	**KSA**	**Expected learning outcomes (see also Table 4 & 5)**	**Teaching/Learning Activities**	**Assessment Criteria**
1	**Professional Knowledge**	**Knowledge**	1. Describe concepts, theories and approached applied during the provision of nursing care	Lectures, Seminars, discussions, Journal clubs, Tutorials and Assignments	Concepts, theories, and approach applied during the provision of nursing care correctly described.
			2. Apply knowledge of nursing care to patients and clients with communicable, non-communicable diseases and injuries	Journal clubs, clinical presentations, bedside teaching, seminars, Case presentations, lectures, ward rounds,	Knowledge of nursing care of communicable, non-communicable diseases and injuries appropriately applied.
		Skills	2. Apply critical reasoning to solve nursing health care challenges	Journal clubs, clinical presentations, bedside teaching, seminars, Case presentations, fieldwork, ward rounds, role play, role modelling, demonstrations.	Critical reasoning applied effectively in solving health care challenges.
		Attitudes	3. Reflect upon personal strengths and limitations and actively work to correct deficiencies, seeking assistance when needed	Journal clubs, seminars, Case presentations, lectures, ward rounds, role play, role modelling	Accepts constructive feedback, consult, correct errors, and learn from them.

2.0	**Practical/Clinical Skill**	**Knowledge**	4. Demonstrate knowledge of appropriate techniques for conducting complete and relevant clinical evaluation in a systematic manner	Seminars, clinical teaching sessions, video demonstrations, role modelling, ward rounds and lectures	Techniques for appropriately conducting a complete and relevant clinical evaluation to formulate a systematic nursing plan correctly described.
		Skills	5. Gather complete and focused patient information in an organized manner, appropriate to the patient clinical situation	Roleplay, Case study and Practical demonstrations	Patients comprehensive and focused information is correctly gathered and organized inappropriate manner based on the patient clinical situation
			6. Provide quality and holistic nursing care to patients and clients with medical, surgical and gynaecology diseases, and obstetric problems	Clinical case presentations, bedside teaching, ward/nursing rounds, role play, role modelling, demonstration	Quality and holistic nursing care to patients and clients with medical, surgical and gynaecology diseases and obstetric problems provided based on standards and guidelines
		Attitude	7. Demonstrate confidence when performing clinical procedures	Roleplay, nursing rounds, practical demonstrations, observation of procedures, performing tasks under supervision.	Assigned nursing tasks performed correctly with minimal supervision.
3.0	**Relationship with Patients, Clients and Communities**	**Knowledge**	8. Describe patient/Communities/client Nurse relationships	Tutorials, Discussion in Groups, and Assignments	Concepts of therapeutic and non-therapeutic interactions during care provision correctly described.

		Skills	9. Establish constructive relationships and communicate effectively with patients, clients and/or Communities to address their needs and preferences.	Roleplay, Case study and Practical demonstrations	Communicate effectively with the patient, clients, and communities when providing care.
		Attitudes	10. Demonstrate compassion, respect, and integrity while interacting with patients, clients and communities	Seminars, Roleplay, Role modelling.	Compassion, respect and integrity, when interacting with patients, clients and communities appropriately demonstrated.
4.0	**Intra and Inter-professional practice and collaboration**	**Knowledge**	11. Demonstrate knowledge of one's role and those of other health professions to assess and address the health care needs of patients appropriately	Seminars, Case presentations, fieldwork, ward rounds, role play, role modelling.	Applies health care team dynamics principles to deliver and evaluate patient/population-centred nursing care appropriately.
		Skills	12. Demonstrate ability to build teams working under a broad range of personal and practical circumstances	Case presentations, fieldwork, ward rounds, role play, role modelling,	Works efficiently with other health professionals respectfully and responsibly, supporting a team approach under varying personal and practical situations.
		Attitudes	13. Maintain effective working relationships with other health professionals, peers and faculty.	Seminars, case presentations, fieldwork, ward rounds, role play, role modelling, demonstrations.	Demonstrates respect for unique cultural values, roles, responsibilities, and expertise of own and other health professions, peers and faculty appropriately.
5.0	**Communication Skills**	**Knowledge**	14. Demonstrates the ability to communicate with a patient/client	Seminars, Case presentations, ward	Provides oral, written or electronic information to the

				rounds, role play, role modelling, demonstrations	patient in a comprehensive and meaningful manner timely.
		Skills	15. Counsel and educate patient/ client by applying counselling principles and education techniques	Case presentations, ward/nursing rounds, role play, role modelling, demonstrations.	Counsels and educate clients and patients using appropriate counselling principles and techniques effectively.
		Attitudes	16. Demonstrates verbal and non-verbal communication (e.g., eye contact, gestures, facial expressions, posture) when communicating with patients and healthcare professionals appropriately.	Seminars, Case presentations, fieldwork, ward rounds, role play, role modelling, demonstrations.	Listens and responds to patients and other health professionals verbal and non-verbal communication empathetically and effectively.
6.0	**Maintaining Good Practice**	**Knowledge**	17. Analyze evidence from scientific studies, guidelines and protocols related to clinical practice.	Journal clubs, clinical presentations, bedside teaching, seminars, case presentations, fieldwork, ward rounds, role play, role modelling.	Seeks information necessary to improve professional practice (life-long learning) regularly.
		Skills	18. Uses scientific evidence in providing health care services	Journal clubs, clinical presentations, bedside teaching, seminars, Case presentations, fieldwork, ward rounds, role play, role modelling, demonstrations.	Evidence-based decision-making employed correctly when providing health care services.

		Attitudes	19. Demonstrate ability to assess own skills and limitations.	Seminars, case studies, clinical presentations, role modelling, ward rounds.	Individual abilities and limitations are recognized correctly, and consultations are made appropriately.
7.0	**Working within the System and Context of Health Care**	**Knowledge**	20. Demonstrate knowledge of the healthcare system functions (structures, policies, regulations, standards and guidelines)	Lectures, seminars practical, group and individual assignments, and projects.	Healthcare system functions (structures, policies, regulations, standards and guidelines) are described correctly.
		Skills	21. Uses healthcare resources appropriately for optimization of patient care	Seminars practical, groups and individual assignments, fieldwork, and role modelling.	Healthcare resources and consideration of cost and risk benefits to patients care applied appropriately.
		Attitudes	22. Advocates for quality and optimal patient care systems.	Seminars practical, group and individual assignment, ward rounds, and role modelling.	Identifies system errors and implements potential systems solutions accurately and timely.
8.0	**Professionalism**	**Knowledge**	23. Demonstrate knowledge of principles of health care professionals.	Lectures, Seminars practical, group and individual assignments, and research project	Pillars of health care professionals are described correctly.
		Skills	25. Demonstrate time management skills and an appropriate level of preparedness.	Practical, clinical, group and individual assignments and discussions, roleplay and role modelling.	Observes punctuality and prepares appropriately for all assignments and daily tasks.

		Attitudes	25. Demonstrates accountability for errors conducted during provision of health care services	Self-directed reading, seminars, video demonstrations, clinical rounds, role play and role modelling.	Admits to errors and refrains from allocating blames and seeks solutions and assistance to rectify errors correctly and timely.
9.0	**Scientific Inquiry and critical thinking**	**Knowledge**	26. Demonstrate an increased ability to explain a health problem comprehensively.	Journal clubs, clinical presentations, bedside teaching, seminars, Case presentations, role play, role modelling, demonstrations.	Explains comprehensively and accurately the causes of and solutions to health problems.
		Skills	27. Employ evidence/information in conducting a comprehensive analysis to solve health care challenges	Presentations, bedside teaching, seminars, Case presentations, fieldwork, ward rounds, role play, role modelling, demonstrations.	Applies evidence from data in accurately analysing and solving health problems.
		Attitudes	28. Demonstrate ability to describe his/her perspectives and those of others in solving health problems.	Journal clubs, clinical presentations, bedside teaching, seminars, Case presentations, ward rounds, role play, role modelling and demonstration.	Accepts constructive feedback and willingness to correct and learn from errors positively.

3.5 Translating the Competencies and LO's into BScN Programme

(a) Programme structure

The BScN programme is a Bachelor's level (8) based on the UQF[7]. In translating the learning outcomes into the programme in these benchmarks, that aspect has been considered. Programme developers or reviewers should at a minimum ensure the BScN programme consists of several courses leading to a degree. The required courses are grouped into three categories, namely Foundation, Professional and General course as shown in **Table 3**. The first two years of the programme should be devoted to biomedical sciences (Foundation) and General courses, necessary for facilitating a deep understanding of the subsequent professional (clinical) courses during year three and four. The BScN programme may be organized into courses that may have modules during years one to three and clinical rotations in year three and four, but each rotation should cover a specific course or subject [13]. The most important aspect of programme course structuring should be that the courses are arranged from simple to complex in a spiral fashion and tabulated in a normal learning matrix.

Table 3: Bachelor of Science in nursing courses/subject areas

Foundation Courses	Professional Courses	General courses
Anatomy	Principles of Nursing	Behavioral Sciences
Biochemistry	Medical and Surgical Nursing	Health System and Development
Physiology	Entrepreneurship, Leadership and Management	Teaching and Learning
Microbiology & Immunology	Community Health Nursing	ICT and Communication
Parasitology & Entomology	Midwifery	
Biostatistics & Epidemiology	Mental Health Nursing	
Pharmacology	Medical-surgical nursing practice	
Nutrition	Nursing Research	
Professionalism & Ethics	Pediatric Nursing	

Note: *The names of the courses may slightly differ from HEI to HEI. The emphasis should be on content rather than title.*

An example of a minimum programme structure and courses of the BScN programme is shown in **Appendix 3.**

(b) Methods of Delivery

The programme can be delivered in many ways guided by the learning outcomes. However, irrespective of the approach, a significant amount of time should be dedicated to active learning, which encourage critical thinking to foster learning. There must be sufficient time for self-directed learning. Practical/clinical practice and reflection should be well planned to encourage students to develop the habits of lifelong learning. The BScN programme should provide adequate opportunities to acquire independent learning skills while developing clinical competence to the appropriate level. Experiential learning from extensive periods of direct patient contact is an essential component of the programme. It should be supported by skills laboratories and adequate numbers of patients in health care training facilities.[13] **Appendices 1 and 2** show the proportion of the various teaching/learning activities as percentage of the total hours for each course in the programme.

(c) Methods of Assessment

Assessment strategies should be comprehensive and rigorous and concentrate on assessment for learning (Formative Assessment - FA) rather than an assessment of learning (Summative Assessment - SA). Assessment methods should be multiple, valid, reliable, aligned with teaching methods, the desired competencies, and specific learning outcomes. Clinical competence must be rigorously assessed to identify students who have not yet achieved learning outcomes and master competencies. Methods of achieving these aims may vary but should abide by principles elaborated in Miller's pyramid for assessment **(Figure 5)** and may include frequent direct observations of students, Objective Structured Clinical/Practical Examination (OSCE/OSPE) multisource rating methods. In addition to clinical competence, curricula should assess students' professional attitudes and values [13, 18, 20, 21]

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[7] Tanzania Commission for Universities (TCU). University Qualifications Framework (UQF). First Edition. Dar-es-Salaam (2012

[13] Kennedy , ogna, 1-115, 2007.

[18] Med. 1990; 65(9): 63–67

[21] Ramani S, Leinster S, AMEE Guide no 34: Teaching in the clinical environment. Medical Teacher, 2008:30(4):347-364

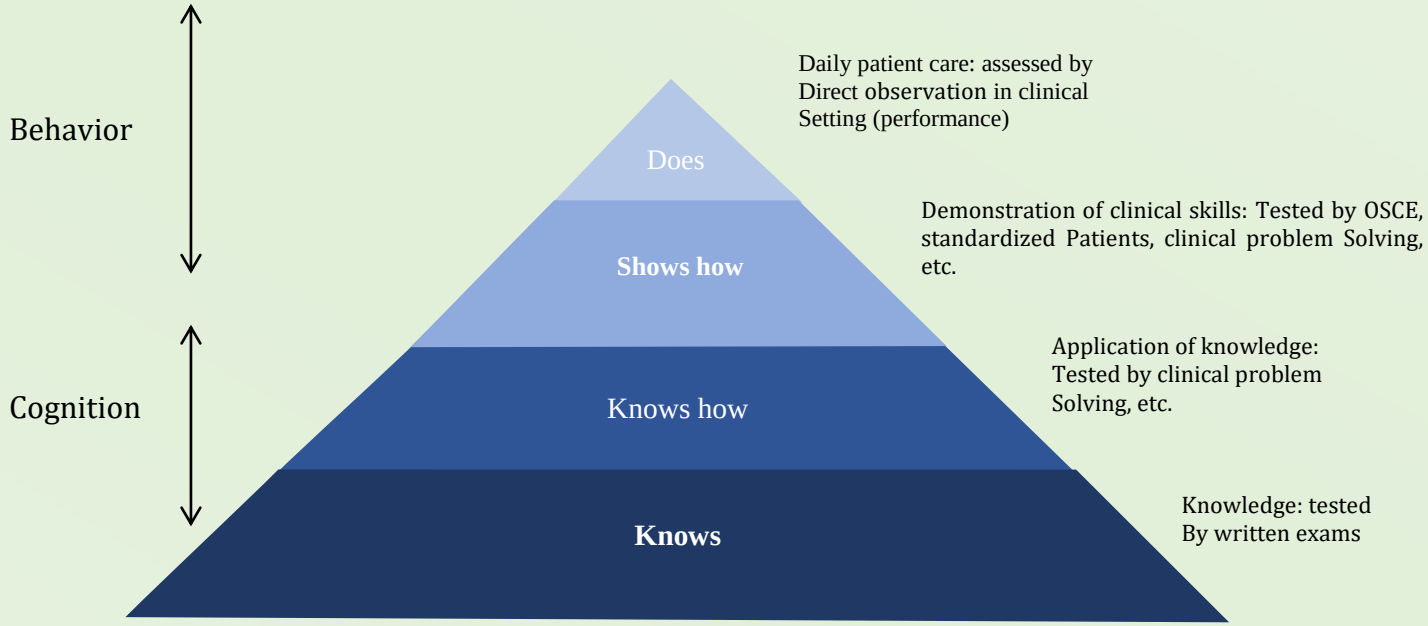

Figure 5. Miller's Pyramid for Clinical Assessment (*Modified from Miller GE, 1990)* [22]

22 Suskie L: Assessing Student Learning: A Common-sense Guide, 2nd ed (San Francisco: Jossey-Bass), 167, 2009

3.6 The Learning Outcomes and Curriculum alignment matrix

To check if the planned courses cover the learning outcomes, developing a curriculum alignment matrix is essential, as indicated in section **2.2.3.** For each course, the developers should formulate the specific learning outcomes for that course and check how far this course contributes to the programme learning outcomes. **Table 4** gives an example of a curriculum alignment matrix for the ELO's of the BScN programme. For each subject, the contribution to the ELOs is given. The Interpretation of the numbers is shown in **Table 5**.

Table 4: Curriculum Alignment Matrix

Core subject Area	EXPECTED LEARNING OUTCOMES (SEE TABLE 5)																											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Gross Anatomy & Histology	X						X				X						X							X	X				
Biochemistry and Molecular Biology	X						X				X						X							X	X				
ICT & Communication skills							X						X	X	X		X												
Professionalism & Ethics in Health and Research.	X	X	X	X						X	X							X				X	X		X		X	X	X
Physiology	X						X				X						X							X	X				
Behavioural science	X												X	X															
Principles of Nursing	X																												
Microbiology & Immunology	X				X						X						X							X	X				
Parasitology & Entomology	X				X						X						X							X	X				
Epidemiology & Biostatistics	X										X						X							X	X				
Health Systems & Development											X										X	X	X						

Basic and Clinical Pharmacology	X				X		X				X							X						X	X				
Leadership, Management and Entrepreneurship							X														X	X							
Teaching and learning in Clinical Practice	X				X						X							X							X	X			
Community Health Nursing	X	X					X	X															X			X	X	X	X
Basic and Clinical Nutrition	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X										
Medical and Surgical Nursing	X		X		X	X	X	X	X	X	X	X	X	X	X			X	X	X					X	X	X	X	X
Midwifery	X		X		X	X	X	X	X	X	X	X	X	X	X			X	X	X					X	X	X	X	X
Mental Health Nursing	X		X		X	X	X	X	X	X	X	X	X	X	X			X	X	X					X	X	X	X	X
Paediatrics and Child Health	X		X		X	X	X	X	X	X	X	X	X	X	X			X	X	X					X	X	X	X	X
Community Health Nursing Field			X				X	X	X	X	X	X	X					X			X	X	X			X	X	X	X
Midwifery Practice					X	X	X	X	X	X	X	X	X	X	X			X	X	X					X	X	X		X
Research Data Analysis and Reporting			X	X													X	X	X	X							X	X	X
Mental Health (Forensic Psychiatry) Field			X				X	X	X	X	X	X	X					X			X	X	X			X	X	X	X
Medical-Surgical Nursing Practice					X	X	X	X	X	X	X	X	X	X	X			X	X	X					X	X	X	X	X

Table 5: Interpretation of the Numbers in Table 4.

Number	Expected Learning Outcomes
1	Describe concepts, theories and approaches applied during the provision of nursing care
2	Apply knowledge of nursing care to patients and clients with communicable, non-communicable diseases and injuries
3	Apply critical reasoning to solve nursing health care challenges
4	Reflect upon personal strengths and limitations and actively work to correct deficiencies, seeking assistance when needed
5	Demonstrate knowledge of appropriate techniques for conducting complete and relevant clinical evaluation in a systematic manner
6	Gather complete and focused patient information in an organized manner, appropriate to the patient clinical situation
7	Provide quality and holistic nursing care to patients and clients with medical, surgical and gynaecology diseases, and obstetric problems
8	Demonstrate confidence when performing clinical procedures
9	Describe patient/Communities/client Nurse relationships
10	Establish constructive relationships and communicate effectively with patients, clients and/or Communities to address their needs and preferences.
11	Demonstrate compassion, respect, and integrity while interacting with patients, clients and communities
12	Demonstrate knowledge of one's role and those of other health professions to assess and address the health care needs of patients appropriately
13	Demonstrate ability to build teams working under a broad range of personal and practical circumstances
14	Maintain effective working relationships with other health professionals, peers and faculty
15	Demonstrates the ability to communicate with a patient/client
16	Counsel and educate patient/ client by applying counselling principles and education techniques
17	Demonstrates verbal and non-verbal communication (e.g., eye contact, gestures, facial expressions, posture) when communicating with patients and healthcare professionals appropriately.
18	Analyze evidence from scientific studies, guidelines and protocols related to clinical practice.
19	Uses scientific evidence in providing health care services
20	Demonstrate ability to assess own skills and limitations.
21	Demonstrate knowledge of the healthcare system functions (structures, policies, regulations, standards and guidelines).
22	Uses healthcare resources appropriately for optimization of patient care.
23	Advocates for quality and optimal patient care systems.
24	Demonstrate knowledge of principles of health care professionalism.
25	Demonstrate time management skills and an appropriate level of preparedness.
26	Demonstrates accountability for errors conducted during provision of health care services
27	Demonstrate an increased ability to explain a health problem comprehensively.

28	Employ evidence/information in conducting a comprehensive analysis to solve health care challenges.
29	Demonstrate ability to describe his/her perspectives along with those of others in solving health problems.

3.7 Assessments

Assessment is required in every phase of nursing professional development. As often said, assessment is the tail that wags the curriculum "dog," or in simple terms, assessment drives the curriculum, and assessment drives learning. [20] Implementing the curriculum to achieve the learning outcomes require a comprehensive, sound and robust enough strategy to assess the requisite attributes and testing the acquisition of the essential knowledge skills and attitudes.[20-23] During programme development and review, the BScN programme developers should:

(i) Include assessment strategies that cover FA or "Assessment for Learning" and SA, or "Assessment of Learning" on which decisions about progression are made.

(ii) Ensure assessment for learning play a prominent role because formative feedback is an essential element of developing competence.

(iii) Ensure assessment for learning is informal, frequent, dynamic and non-judgmental, primarily for the benefit of the student's learning and not for the institution's progress tracking.

(iv) Ensure that FA is built into the design of all courses and modules and is not taken as tests to pass rather than learning opportunities.

(v) Ensure students get the maximum benefit from feedback, self-assessment, reflection and the development of lifelong learning skills to enable students to fulfil their responsibilities as required by profession on professional values and fitness to practice; and achieve the outcomes set out in these benchmarks.

(vi) Assess all outcomes for graduates expected at appropriate points during the programme implementation, and only students who meet the expected outcomes are permitted to graduate.

(vii) Have assessments that include multiple methods and multiple assessors embedded within an effective educational system.

(viii) Ensure assessments are "fit for purpose"- that is, they are valid, reliable, generalizable, feasible and fair.'

(ix) Consider educational impact (the effect of assessments - positive and otherwise, on students' learning and development), cost-effectiveness, and acceptability (the attitudes of students and others to the assessments).

(x) Use blueprinting in assessment, which is a map or specification of assessment items based on educational outcomes whose primary function is to support the validity of assessment concerning its content – content validity. Blueprinting helps to align assessment items with the intended learning outcomes and students learning experience. A blueprint is essential to ensure the alignment of the validity of any assessment content with the intended learning outcomes and a learning experience.[23, 25, 25]

(xi) When blueprinting, choose an appropriate assessment format for each outcome. For example, multiple-choice questions (MCQs) may be appropriate for testing knowledge and OSCEs for testing skills. Overlapping the formats used for particular outcomes is inevitable and necessary, confirming performance through triangulation.

(xii) Provide evidence that every assessment has been designed to test a particular aspect, or aspects, or an appropriate outcome, or outcomes, in the programme through blueprinting.

Methods of assessment

The type of assessment and method used plays a significant part in what is learnt. There are various assessment methods in Nursing Education, including written (essay) questions; written (Multiple Choice Questions – MCQ); patient management problems, checklists, OSCE; student projects/fieldwork reports, Critical reading of papers, Rating scales, lecturer reports, portfolios, short case assessment (SCA) and long case assessment (LCA), logbook, trainer's report, audit,

simulated patients, video assessment, simulators, self-assessment, peer assessment and standardized patients. [20, 21,22, 23]

3.8 Grading and Classification of the BSc Nursing Programme

In the grading of students, nursing schools and faculties shall grade with percentage converted into letter grades, Grade points (GP) range, and Grade Point Averages (GPAs) from raw marks using a five-point scale system. **Table 6** shows the assignment of raw marks to letter grades and GPs for the BSc N programme. In calculating GPAs with the exceptional of optional or elective courses, scores from all core courses shall be included in computing the final grade for the award based on the minimum number of credits required for the BSc N programme. The final award for the qualification of BSc N programme shall be classified as shown in **Table 6.**

Table 6: Grading and Classification in BSc N programme

Letter grade	**A**	**B+**	**B**	**C***	**D**	**E**
Percent	75 -100	70 – 74.9	60-69.9	50-59*	40-49	00 – 39.9
Grade Point range	4.5 - 5.0	4.4 - 4.49	4.0 - 4.39	3.0 - 3.9	2.0 - 2.9	00 - 1.9
Remarks	Excellent (Distinction)	Very Good (Credit)	Good (Pass)	Satisfactory (Pass)	Fail	Fail
Classification (Cumulative)	First Class	Upper Second Class	Lower Second Class	Pass		

** Pass mark is 50%*

3.9 Curriculum Development and Implementation of Quality Assurance

Before the development of a new programme or revision, institutions should do tracer studies. A tracer study is a survey of graduates from a university institution, which occurs sometime after graduation or the training. The primary purpose of a tracer study is to maintain curriculum relevance and provide targeted benefits to graduates to enhance the marketability of the educational programme. Tracer studies can also include stakeholders' consultations and employers' and

graduates' interviews, and all these can provide data for quality improvement of the programme. The tracer study findings guide the content of the curriculum and the formulation of the Intended Learning outcomes (ILOs) at all levels and promote the aligned teaching or the learning chain. The BScN programme faculty should conduct tracer studies every six (6) years *(four (4) years of nursing training, one(1) year of internship and one(1) year of practice).*

To assure quality, developers of the BScN programme should, in addition, develop and implement a Curriculum Map (CM). CMs facilitate QA of curriculum development and implementation as they appraise content integration and identify curricula gaps and redundancies. CMs also link learning outcomes with programme content, instruction methods, assessment tools, assessment schedules, and monitor and document compliance with curriculum accreditation standards and promote teaching alignment. [23]Aligned teaching is a process of tying together the different parts of teaching and learning for the student in a logical and defined order. It starts with the formulation of ILOs and makes the ILOs visible by designing relevant, fit-for-purpose assessments and assessment criteria. Then finally, the teaching and learning activities that will make the student achieve the ILOs are designed. This strategy and the CM make the process and the programme transparent, ensures coverage, facilitates assessment efficiency and relevance of the assessments, thus assuring quality. An example of CM is shown in **Table 7**.

23 Ismail MA-A, Mat Pa MN, Jamilah A-MM, Yusoff MSB: Seven steps to construct an assessment blueprint: a practical guide. Education in Medicine Journal. 2020;12(1): 71–80: https://doi.org/10.21315/eimj2020.12.1.8.

Table 7: Curriculum map of BScN learning outcomes

Courses and Codes	Programme Courses			
	PN 101	**PN 202**	**PN 303**	**PN 404**
TEACHING METHODS	**Lectures, Practical, demonstrations**	**Lectures, Practical, demonstrations**	**Lectures, Practical, demonstrations Clinical rotations**	**Lectures, Practical, demonstration Clinical rotations**
Learning Outcomes for Program				
Describe the principles of drug administration	I, A (written exam),			
Prepare drugs for oral/enteral medication	R	R, A (written exam and OSPE)	R	M, A (written exam, Mini CEX and DOPS)
Administer enteral/oral medication	R	R, A (written exam and OSPE)	R	M, A (written examination, Mini CEX and DOPS)
Manage a patients with medication side effects	I, A (written exam)	R	R	M, A (written examination, Mini CEX and DOPS)

Key: *"I" = Introduced; "R" = Reinforced and opportunity to practice; "M" = mastery is demonstrated (often at the senior or exit level); "A" = assessment evidence collected.*

3.10 The role of Clinical apprenticeship

Clinical apprenticeship intends to provide students with the opportunity to practice a range of clinical skills with actual patients within a healthcare setting. The students should be attached to clinical areas including medical, surgical, pediatric, obstetric, gynaecological, neonatal, emergency units, dialysis units, dental, ophthalmology, oncology, orthopaedic, mental health wards, operating theatre, recovery room/unit, and intensive care unit for a specified period. Adequate time must be allotted for clinical practice and supervised by the clinical staff and the faculty. Learning in clinical settings shall be achieved through bedside/ clinical teaching, case presentation and

discussion, reflective journaling of clinical experience and nursing rounds.

During the clinical apprenticeship, the BScN programme should comply with the Dreyfus model of skill acquisition that take the learners through five (5) stages of skills acquisition, i.e., Novice, advanced beginner, competent, proficient and expert/outlier **(Figure 6).**

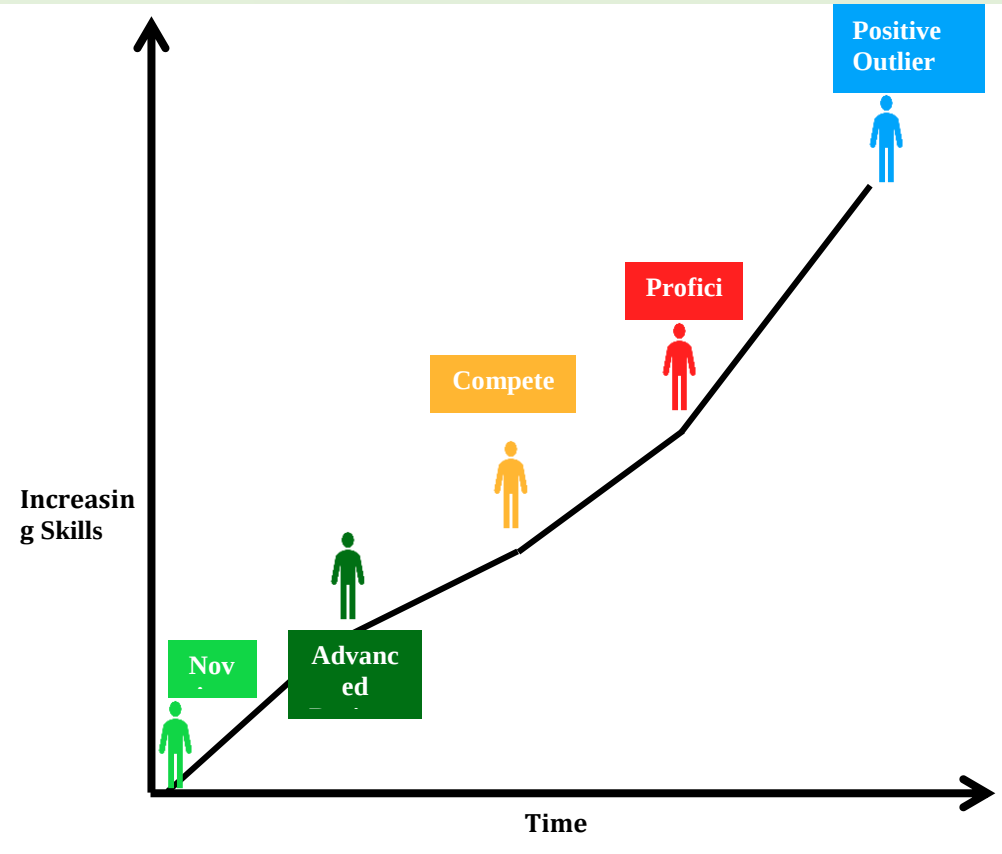

Figure 6. Dreyfus Model of skills acquisition *(Modified from Dreyfus & Dreyfus, 1980.[24])*

The Dreyfus model requires students to learn from direct instructions and practice in real-time environments. 24, 25, 26. It assumes that the longer learners practice under supervision, the more they become experienced and competent. The model allows for valid assessment methods and schedules to be integrated into the curriculum to assess

the progressive competency development milestones. The milestones should be tabulated to include all nine competency domains, as shown in **Table 8. Appendix 4** shows minimum milestones requirements for the BSc Nursing programme in details. As students become more experienced, they no longer need to be fully supervised but independent practising as proposed by Millers' pyramid of competence **(Figure 7)**. This is important for planning and assessing the minimum practical skills required for the programme as described in **section 3.12** .

Table 8: BScN Student Milestones According to Dreyfus Model of Skills Acquisition

Competency Domain: Clinical/Practical skills	**Learning Outcome:** Performs wound care and dressing correctly.				
	Level 1: Novice (year 1)	Level 2: Advanced beginner (year 2)	Level 3: Competent (year 3)	Level 4: Proficient (year 4)	Level 5: Expert
	Recognizes different types of wounds	Recognizes principles and procedure for wound care	Applies principles of aseptic techniques during wound care/dressing	Utilizes evidence based practice when performing wound care	Develops policies and protocols for wound care
		Describes wound healing process and complications	Assesses progress of wound healing	Integrates hospital support in the form of a multidisciplinary team for a delayed wound healing	

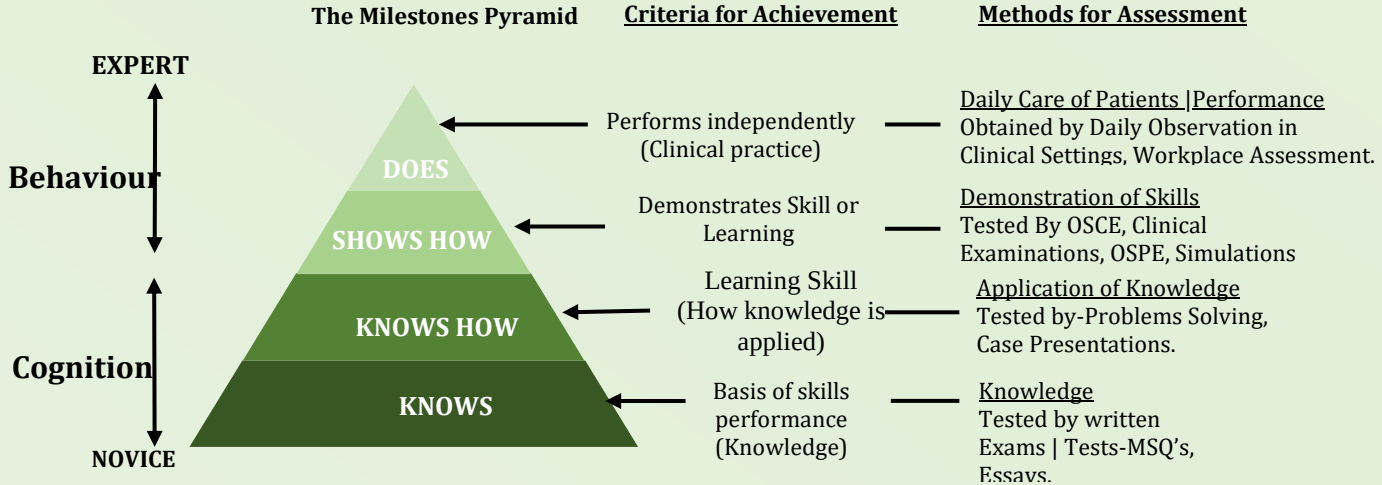

Figure 7: Millers Pyramid of Clinical Learning Aligned with Performance and Assessment *(Modified from Miller GE, 1990)* [i].

3.11 Field Attachment

The purpose of field attachment is to produce graduates with hands-on/real-life experience of providing health services and interventions at community and primary health care. Students will have the opportunity to apply principles, techniques and strategies for health promotion and education in the community. Field attachment should be organized after the student has demonstrated knowledge and skills of most of the courses, particularly community health nursing and forensic psychiatry, to be able to apply knowledge into real-life situations after 3rd year. Programme developers should make the fieldwork compulsory and it must be graded. The students must present and defend the field work report for grading.

3.12 Professional Practical skills and Procedures

The LOs in **section 3.4** define what Nursing graduates from schools/faculties in Tanzania must know and do. The practical skills/procedures described in this section add synergy by defining **minimum essential diagnostic, procedural, therapeutic, and administrative skills a Nursing graduate must be able to perform safely and effectively,** and identifying the level of supervision needed to ensure patients' safety[32].

Nursing schools/faculties should ensure they include in their curricula design a list of at list a minimum practical skills (diagnostic, procedural, therapeutic, and administrative), which a nursing graduate should be able to perform as shown in **Table 9**. They should in addition describe the expected circumstances or quality of performance of the skill or procedure (*see column 3 of table 8*) and minimum level of performance achievement so that they can practice safely.

The programmes should describe the three levels required for safe practice related to level 2 to 5 (*Knows how to Does*) of Dreyfus and Dreyfus Model of skills acquisition (**Figure 6).** As shown in **Table 9,** *Level one* required for safe practice is the advanced beginner (*practice in simulated environment*) where the graduate will not have performed

the procedure on patients but on **manikins** or **simulated patients**. This means the graduate has knowledge and skills of the procedure but shall require performance under direct or structured supervision on living patients, for safety. *Level two* is competence (*performance under direct supervision*), meaning the graduate will have performed the task during nursing training but will need a supervisor observing the practice as the students perform the procedure on patients, to ensure safety before moving to the next level. *Level three* is a proficient student/graduate who is ready to practice and perform the skill or procedure on a patient with minimal or indirect supervision, meaning the new graduate will have performed the procedure under structured or direct supervision on patients during training. Thus, the graduate safely can perform the procedure without help but should have access for consultation if need arise. **Table 9** show examples of minimum (a) procedural, (b) therapeutic (c) midwifery, and (d) administrative skill matrices written in generic form, required for a nursing graduate. The last column in **Table 9** (Criteria Met), will be used by teachers to document skills/procedures that were achieved/not achieved for remediation. Nursing schools/faculties should therefore use the examples to develop detailed minimum requirements in their programmes descriptions to cover all systems, and all courses of the BScN programme. **Appendix 5** provides a detailed list of Minimum procedural, therapeutic, midwifery, and administrative skills required for a BSc Nursing graduates.

Table 9: Description of Minimum Professional Skills for Nursing Graduates

(a) Example matrix showing Procedural Skills, their description and competency level achievement upon graduation.

SN	Skill	Description	Competence Level Achievement			Competence Level Description	Criteria Met (Yes/No)
			Novice	Competent	Proficient		
1.	Take appropriate history and perform a physical examination of all patients in major disciplines, document, and plan management.	• Take history appropriately for all disciplines of medicine and document accurately. • Perform physical examinations appropriately. • Elucidate and interpret the patients' symptoms and physical findings and record them accurately. • Plan the course of action guided by the history and physical findings			X	Safe to practise under minimal supervision	
2.	Check vital signs: body temperature blood pressure and pulse	• Check medical order or nursing care plan for frequency of vital sign			X	Safe to practise under minimal	

SN	Skill	Description	Competence Level Achievement			Competence Level Description	Criteria Met (Yes/No)
			Novice	Competent	Proficient		
		checking • Prepare equipment • Identify the patient and obtain consent • Perform hand hygiene and put on PPE, if indicated. • Maintain privacy • Assess patient's ability to assist with the procedure • Assess if the electronic or digital thermometer/Blood pressure machine/pulmometry are in working condition. • Follow the steps of vital sign checking procedure • Document the findings				supervision	

SN	Skill	Description	Competence Level Achievement			Competence Level Description	Criteria Met (Yes/No)
			Novice	Competent	Proficient		
3.	Conduct pain assessment	• Assess pain upon admission • Perform comprehensive pain assessment upon onset of new pain • Take routine pain screening with routine taking of vital signs • Perform re assessment after pain intervention		X		Safe to practise under structured supervision	

(b) Example matrix showing Therapeutic Skills, their description and competency level achievement upon graduation

SN	Skill	Description of Procedure	Competence Level Achievement			Competence Level Description	Criteria Met (Yes/No)
			Novice	Competent	Proficient		
1.	Initiate IV therapy	• Assess the patient requiring IV therapy • Check correctness of the order for IV therapy • Prepare IV infusion tubing and infusion set • Assist patient for comfort on position • Select a suitable vein for venepuncture • Prepare the venepuncture site • Don gloves • Perform the venepuncture • Remove the constricting band • Attach the administration tubing to the cannula hub while maintaining stabilization of the hub with the non-dominant hand • Adjust fluid to the desired flow rate • Report unexpected outcomes after the procedure		**x**		Safe to practise under minimal supervision	

2.	Administer oxygen therapy to a patient with an artificial airway	• Assess patient for respiratory status and observe for signs and symptoms associated with hypoxia • Observe airway and remove airway secretions • Monitor arterial blood gases (ABGs) or pulse oximetry (SpO2) values • Observe asepsis –consider need for barrier gown • Attach T tube or tracheostomy collar to large-bore oxygen tubing and to humidified oxygen source • Adjust oxygen flow to 10L/min or as ordered and adjusted nebulizer to proper Fio2 setting. Attach T tube or tracheostomy collar to endotracheal or tracheostomy tube • Observe frequently the oxygen tubing in situ • Set up suction equipment at patient's bed side • Record and report all findings and status			**X**	Safe to practise under direct supervision	
3.	Administer blood and blood products,	• Verify the physician's order for the specific blood or blood product • Take history of blood transfusion and		**x**		Safe to practise under direct supervision	

	document, and report for reactions	note any known allergies and previous transfusion reactions. • Verify that type and crossmatch (also known as a G & S) have been completed within the past 96 hours. • Verify patency of IV site • Obtain and record the patient's pre-transfusion baseline vital signs, including temperature, pulse, and respiration, blood pressure, and oxygen saturation level. If the patient is febrile (temperature is higher than 37.8°C), notify the physician before initiating the transfusion • Adhere to infections prevention and control measures • Record all information concerning blood given and any reaction observed • Report in case of blood reactions and administer reaction medication as prescribed					

(c) Example matrix showing midwifery skills, their description and competency level achievement upon graduation.

SN	Skill	Description of Procedure	Competence Level Achievement			Competence Level Description	Criteria Met (Yes/No)
			Novice	Competent	Proficient		
1.	Perform manual Vacuum Aspiration (MVA) of the uterus after incomplete abortion to prevent complications	• Prepare the aspirator • Explain the procedure to obtain consent • Perform the cervical antiseptic preparation • Dilate cervix to the right size and insert cannula through cervix • Perform suction of uterine contents • Inspect tissue of aspiration • Perform any concurrent procedure such contraceptives or cervical tear repair		**X**		Safe to practise under minimal supervision	
2.	Inspect the placenta and membranes for completeness	• Prepare required equipment and supplies i.e., a flat surface with protection to avoid blood spillage, syringe, and needle if cord samples are required • Wear an apron and gloves and lay the placenta foetal side			**X**	Safe to practise under minimal supervision	

SN	Skill	Description of Procedure	Competence Level Achievement			Competence Level Description	Criteria Met (Yes/No)
			Novice	Competent	Proficient		
		uppermost, noting the size, shape, smell and colour • Examine the cord, noting the length, insertion point and presence of true knots or thrombi • Inspect the umbilical cord vessels • Observe the foetal side for succenturiate lobes, missing cotyledons, fatty deposits, or infarctions and for completeness of membranes • Examine the cotyledons, ensuring all are present, noting the size and any areas of infarction, blood clots or calcification. • Retain the clots to make an accurate assessment of blood loss • Weigh the placenta • Complete documentation and					

SN	Skill	Description of Procedure	Competence Level Achievement			Competence Level Description	Criteria Met (Yes/No)
			Novice	Competent	Proficient		
		report for abnormalities observed					
3.	Perform physical examination of the newborn	• Perform head to toe assessment sequentially • Check eyes condition and movement • Listen to baby's heart to check the heart sounds • Examine the hips to check the joints • Measure the new-born's weight and head circumference • Assess whether urine and meconium have been passed • Diagnose any congenital malformations and arrange any required management • Examine testicles for baby boys and pseudo menstruation for girls			**X**	Safe to practise under minimal supervision	

(d) Example matrix showing administrative skills, their description and competency level achievement upon graduation

SN	Skill	Description of Procedure	Competence Level Achievement			Competence Level Description	Criteria Met (Yes/No)
			Novice	Competent	Proficient		
1.	Design staff duty roster	• Assess how many weekends do staff work per month and what are the night duty expectations • Consider staff absences e.g., annual leave, sickness and study leave and mark them in • Assess how many shifts each staff member can covers • Identify the ranks/skill mix of the shifts required i.e., competencies of nurses, for example assessment days, theatre days or consultant/specialist visits. • Consider requests for certain shifts or days off • Prepare staff duty roster			**X**	Safe to practise under minimal supervision	

SN	Skill	Description of Procedure	Competence Level Achievement			Competence Level Description	Criteria Met (Yes/No)
			Novice	Competent	Proficient		
2.	Obtain informed consent for procedures	• Explain to patients all procedures to be done • Ascertain comprehension; mention the benefits and risks involved and proceed when clients agree • Correctly document the informed consent process			**X**	Safe to practise under minimal supervision	
3.	Enforce implementation of care protocols and policies	• Ensure availability and access of care protocols and guidelines to maintain standards of nursing care • Collaborate with other nursing team to implement protocols • Supervise writing and update policies and procedures and lead by example		**X**		Safe to practise under minimal supervision	

For each professional procedure there are **minimum generic requirements** which the nursing graduate should demonstrate during practice[24]. In their design of programmes, nursing schools/faculties should in addition describe the minimum generic requirements for each procedure. **Table 10** shows the minimum generic requirements for each professional procedure.

Table 10: Minimum Generic Requirements for Each Skill/Procedure

SN	Requirement
1.	Self-introduction
2.	Check the patient's identity.
3.	Confirm that the Procedure is required
4.	Explain the procedure (possible risks, complications)
5.	Request informed consent for procedure
6.	Follow universal precautions
7.	Label samples according to guidelines appropriately.
8.	Document the procedure accurately following hospital policy/guidelines.
9.	Observe of confidentiality
10.	Interpret and act on any results
11.	Plan the appropriate aftercare and monitoring of the patient

3.13 Physical Infrastructure

Clinical learning environment plays an important role in influencing students' learning behaviours and acquisition of clinical competencies. Traditional nursing education focuses on the learners, the educators, and the curriculum while tending to overlook the role of the physical environment in the successful implementation of the curriculum. Experience shows that nursing education processes and outcomes are sensitive to the qualities and disposition of the physical spaces in which it occurs. Thus, quality infrastructure facilitates curriculum implementation by providing better instruction, improves student outcomes, and reduces attrition rates, among other benefits.

At the same time, nursing education is rapidly changing, influenced by, among other factors, the altered societal expectations. Changes in

[24]Janelle L. Theisen and Kristin E. Sandau: Competency of New Graduate Nurses: A Review of Their Weaknesses and Strategies for Success. The Journal of Continuing Education in Nursing. 44: 406-414 2013.

societal expectations put patient safety at the forefront and raise the ethical issues of learning interactions and procedures on live patients and the need for skills laboratories. The educational goals of using ICT and other technologies in education and curriculum implementation include facilitating basic knowledge acquisition, improving decision-making, improving skill coordination, practicing for rare or critical events, learning team training, and improving psychomotor skills, all of which are important for nursing education.

The Nursing schools in Tanzania should therefore have sufficient, and quality physical facilities to ensure that the curriculum is delivered adequately and in a safe environment. Physical facilities should include the physical spaces and equipment available to implement the planned curriculum for the given number of students and academic staff. The training institutions shall have appropriate basic minimum physical teaching and administrative facilities for the number of staff, and students as highlighted below:-

3.13.1 Physical Resources

These include the pre-clinical and clinical facilities.

(a) The preclinical facilities should include the following: -

(i) Administrative offices
(ii) Staff offices
(iii) Lecture rooms and tutorial rooms adequately equipped for face to face and distance learning
(iv) Teaching Laboratories
(v) Appropriately equipped Skills Laboratories
(vi) Library with both physical and online resources
(vii) Information & communication technology services

(b) Clinical Training Resources

Teaching hospitals are key components in the teaching of clinical courses and procedures to nursing students. The hospitals must attain and maintain minimum requirements to be in compliance with all relevant acts that govern the running of health facilities as well as

higher educational institutions. Since there are no minimum requirements set by the TNMC, but the teaching hospitals are usually accredited by the Medical Council of Tanganyika (MCT) and the East African Community Medical and Dentists Board/Councils, through the Regional Guidelines for Inspection and Recognition of Medical Schools and Teaching Hospitals in Partner States of 2015[25] The teaching hospitals used for BSc N programme should have a minimum of the following Functional units/departments as set by MCT as follows: -

(i) Internal medicine including Dermatology
(ii) General surgery
(iii) Paediatrics and Child Health
(iv) Obstetrics and Gynaecology
(v) Psychiatry and Mental health
(vi) Emergency and Critical care medicine.
(vii) Rehabilitation.
(viii) Pathology and Laboratory Medicine.
(ix) Radiology and Imaging.
(x) Otorhinolaryngology (ORL)/ENT.
(xi) Ophthalmology.
(xii) Orthopaedics, Trauma and Neurosurgery.
(xiii) Anaesthesiology.
(xiv) Operating Theatres.
(xv) Community Health.
(xvi) Outpatient Clinics.
(xvii) Department of Pharmacy.
(xviii) Medical Information Systems
(xix) Dental Department

Details of Minimum requirements for physical resources are described in Part 6 of the Handbook for Standards and Guidelines for University Education in Tanzania, 3rd Edition 2019[25] Curricula developers should ensure these are described in **section 7.0** of the Curriculum Framework (Annex 3.2 - Handbook for Standards and Guidelines for University Education in Tanzania, 3rd Edition 2019.

3.13.2 Relationship between Nursing Schools/Faculties and the Hospitals

Every nursing school/faculty should have a primary teaching hospital, usually used to teach medical students. The school/faculty may use more than one teaching hospital, if these hospitals are approved by a relevant authority and meet the standards prescribed in the TCU Standard and Guidelines for University Education in Tanzania. In the case where the University/College does not own the hospital, there should be a clearly stipulated Memorandum of Understanding (MoU), which must include the following:

(i) Total number of staff required for service, research and teaching based on infrastructure and facilities available.
(ii) The distribution of staff between school/faculty and the hospital, and state clearly their role in the teaching, research, and patient care.
(iii) Resources sharing in areas of financial, human, consumables and equipment which must meet the minimum requirements.
(iv) The quality assurance in the institution.
(v) The relationship between the hospital and the university/school departments.
(vi) The conflicts resolution mechanism.

3.13.3 Minimum Requirements for a Teaching Hospital

The Universities and Colleges of health sciences in Tanzania should observe the following minimum requirements for their nursing teaching hospitals: -

(i) Functional Units (Departments) as stipulated in 3.1 (b) above.
(ii) Bed capacity to give a **student to bed** ratio of **1:4**.
(iii) Bed occupancy rate of at least **80%**.
(iv) **Theatre** to bed ratio of not more than **1:50**.
(v) Tutorial rooms and side labs in the departments for the students.
(vi) Policy on consumables.
(vii) Adherence to policy on infection prevention and control.
(viii) Adherence to policy on occupational health and safety.
(ix) Adherence to staffing norms.

(x) Adherence to policy on standard operating procedures.
(xi) The primary teaching hospital shall declare itself as a training institution for teaching Medical/Nursing and other health science programmes to ensure nursing student to bed ratio of **1:4** is maintained.
(xii) ICT services and facility.

The requirements for teaching Hospitals are further described in Part 6 Annex 6.5 of the Handbook for Standards and Guidelines for University Education in Tanzania, 3rd Edition, 2019.

3.14 Information Communication Technology Resources

The universities of health sciences should provide adequate access to virtual and physical information resources to support the BScN programme. These should be adequate and accessible to both students and staff, including online and physical library resources. Minimum requirements are prescribed in Part 6, Standard 6.6 of the Handbook for Standards and Guidelines for University Education in Tanzania, 3rd Edition, 2019(34).

GLOSSARY OF TERMS[6,25]

"Accreditation" means the action or process of officially recognizing someone or programme or institution as having a particular status or being qualified to perform a particular activity

"Assessment" means the wide variety of methods or tools that educators use to evaluate, measure, and document the academic readiness, learning progress, skill acquisition, or educational needs of students.

"Attitude" means a settled way of thinking or feeling about something.

"Bachelor's degree" means a degree in which the holder of the qualification will be able to apply knowledge, skills and understanding in a broad and unpredictable variety of contexts with substantial personal responsibility, responsibility for the work of others and responsibility for the allocation of resources, policy, planning, execution, and evaluation.

"Benchmark" means a point of reference against which something may be measured.

"Benchmark standards" means subject benchmark statements set out expectations about standards of degrees in various subject areas. They describe what gives a discipline its coherence and identity and define what can be expected of a graduate in terms of the abilities and skills needed to develop understanding or competence in the subject.

"Bloom's taxonomy" means a hierarchical ordering of cognitive skills that can help teachers to teach and students to learn

[25]Inter-University Council for East Africa – Benchmarks for The Bachelor of Computer Science and the Bachelor of Information Technology Programmes. IUCEA, 2015

[6] Tuning: A Guide to Formulating Degree Programme Profiles, Bilbao/The Hague, Chapter 3, page 51-57, 2010

"Client" means someone for whom a professional person or organization is providing a service or doing some work. Example in health facilities client is a patient.

"Clinical reasoning" means the process by which a therapist interacts with a patient, collecting information, generating and testing hypotheses, and determining optimal diagnosis and treatment based on the information obtained

"Clinical skills" means a set of knowledge and practices which aim to develop the competences necessary for the proper professional practice

"Cognition" means the mental processes involved in gaining knowledge and comprehension

"College" means an educational institution or establishment, in particular one providing higher education or specialized professional or vocational training

"Competencies" means a product of individual characteristics and achieved learning outcomes.

"Core subject" means the essential subjects offering a thorough foundation of the discipline. The core subjects are the backbone of the discipline.

"Course (unit)" means a self-contained, formally structured learning experience. It should have a coherent and explicit set of learning outcomes and appropriate assessment criteria. Course /units can have different numbers of credits.

"Curriculum alignment matrix" means an instrument for checking the contribution of a course, unit or module to the achievement of the programme learning outcomes.

"Curriculum" means a set of coherent educational components, based on learning outcomes, that are recognized for the award of a specific qualification through the accumulation of a specified number of credits and the development of specified competencies *(see programme also).*

"DOPS assessment" means Direct Observation of Practical Skills assessment, used for assessing competence in the practical procedures that trainees undertake. The assessments should be made by different assessors and cover a wide range of procedures (please refer to the curriculum for topics).

"Elective subjects" means subjects out of which a student must make a selection, to deepen or to broaden their learning experience in the programme.

"Equivalency" means having the same value without being uniform.

"Formative assessment" means a wide variety of methods that teachers use to conduct in-process evaluations of student comprehension, learning needs, and academic progress during a lesson, unit, or course

"Generic learning outcomes" means those learning outcomes expected from all academically trained graduates, irrespective of the study programme. Examples of generic learning outcomes are problem-solving, communication skills, and the ability to cooperate.

"Graduate" means a person who has successfully completed a course of study or training, especially a person who has been awarded an undergraduate or first academic degree

"Harmonization of programmes" means that the programmes are comparable based on agreed benchmarks.

"Internship" means a period of supervised training at the workplace as an essential part of the programme. It offers the student the

opportunity to become acquainted with his/her future job. It provides the student with experiences at the working floor level.

"Knowledge" means the body of facts, principles, theories, and practices related to a field of work or study. It is the outcome of the assimilation of information through learning and is described as theoretical and/or factual.

"Learning outcomes" are statements of what a learner knows, understands, and can do on completion of a learning process, which are defined in terms of knowledge, skills, and attitude.

"Master's degree" means a degree in which the holder of the qualification will be able to display mastery of a complex and specialized area of knowledge and skills, employing knowledge and understanding to conduct research or advanced technical or professional activity, able to work autonomously and in difficult and unpredictable situations.

"Milestones" means competency-based developmental outcome expectations that can be demonstrated progressively by students from the beginning of their education through graduation to the unsupervised practice.

"Mini CEX" means *Mini-Clinical Evaluation Exercise* for trainees intended to facilitate formative assessment of core clinical skills, used by faculty as a routine, seamless evaluation of trainees in any setting. It is a 10- to 20-minute direct observation assessment or "snapshot" of a trainee-patient interaction, performed at least once per clinical rotation, and requiring timely and specific feedback.

"Module" means a formal learning experience encapsulated into a block of study, usually linked to other modules to create a course or a programme of study.

"Module description" means a statement of the aims, objectives/learning outcomes, content, learning and teaching processes, mode of assessment of students and learning resources applicable to a module or block of study.

"National Qualification Framework (NQF)" means the policy framework that defines all qualifications recognized nationally in post-compulsory education and training within a country. The NQF comprises titles and guidelines, which define each qualification, together with principles and protocols covering articulation and issuance of qualifications and Statements of Attainment.

"Programme" means a set of coherent educational components, based on learning outcomes that are recognized for the award of a specific qualification through the accumulation of a specified number of credits and the development of specified competencies *(see curriculum also).*

"Programme objectives" means the overall specification of the intention or purpose of a programme of study.

"Project work" means a form of study, which is problem oriented. The project is usually based on an actual existing problem, which may be linked to an internship and leads to possible solutions. The project may be practical or research oriented.

"Qualification's framework" means an instrument for developing and classifying qualifications according to a set of criteria for levels of learning and skills and competencies achieved.

"Quality" means standard of something as measured against other things of a similar kind; the degree of excellence of something.
"University" means an institution of higher learning providing facilities for teaching and research and authorized to grant academic degrees

"University Qualifications Framework (UQF)" means an instrument used by Universities in Tanzania to develop and classify qualifications according to a set of criteria for levels of learning and skills and competencies achieved.

"Skills" The ability to apply knowledge and use know-how to complete tasks and solve problems.

"Soft skills" means non-technical skills that relate to how one works

"Summative assessment" means set of procedures and activities used to evaluate student learning and academic achievement at the end of the term, year or semester by comparing it against a universal standard or school benchmark

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APPENDICES

Appendix 1: List of the Minimum ELOs (50) for BSc Nursing Programme

Competency Domain 1: Professional Knowledge

(i) Employ knowledge of basic sciences when providing care to patients/clients.
(ii) Apply principles governing nursing practice.
(iii) Employ knowledge of the causes, pathophysiology and management of diseases and conditions in providing nursing care/service.
(iv) Utilize different control and prevention strategies of common health and health related conditions with a focus on HIV.
(v) Employ the principles of perioperative nursing care.
(vi) Apply principles and concepts related to reproductive and maternal health.
(vii) Apply clinical reasoning to solve clinical problems.
(viii) Manage common conditions during childhood and motherhood in Tanzania

Competency Domain 2: Practical/ Clinical Skills

(i) Provide holistic patient/client care using nursing process, principles and theories across the life span.
(ii) Utilize health promotion strategies and approaches to engage communities to improve health and health related issues.
(iii) Maintain prevention and infection control measures.
(iv) Demonstrate the appropriate use of medicl/nursing instruments, equipment and supplies
(v) Provide developmentally specific and age appropriate nursing care during reproductive, childhood, adolescent and geriatric services.
(vi) Perform common medical/surgical nursing procedures and alleviate patient's pain associated with procedures

Competency Domain 3: Relationships with Patients, Clients and Communities

(i) Establish constructive (therapeutic/professional) relationships with clients and or communities in order to address their health needs and preferences
(ii) Provide counselling for health and health related issues.
(iii) Provide health services to individuals and groups that are appropriate to their different backgrounds

Competency Domain 4: Communication skills

(i) Deliver effective health promotion messages to educate communities
(ii) Communicate effectively scientific findings (oral and in written form).
(iii) Communicate effectively with patients, families, and the public on health issues and policies.
(iv) Communicate effectively with colleagues within one's profession or other health professionals.

Competency Domain 5: Intra and inter-professional practice and collaboration

(i) Apply professional knowledge to contribute effectively to teamwork to deliver client centred care.
(ii) Demonstrate respect for, roles/responsibilities and expertise of other professionals to improving the health of the population.
(iii) Collaborate with others to develop an intervention plan that takes into accounts determinants of health, available resources and range of activities that contribute to health.

Competency Domain 6: Maintaining Good Practice

(i) Systematically evaluate one's own performance and practice (reflective practice).
(ii) Regularly seek information necessary to improve professional practice (life-long learning).
(iii) Apply evidence in decision making.

(iv) Incorporate formative evaluation feedback into daily work practice.
(v) Demonstrate leadership and managerial skills in managing health care delivery within the healthcare system.
(vi) Use information technology to optimize learning, health care delivery and education
(vii) Promote accreditation, monitoring, evaluation and audit to provide quality care in health and health related services.
(viii) Set priorities and manage time to balance professional responsibilities, outside activities and personal life.

Competency Domain 7: Working within the System and Context of Health

(i) Demonstrate knowledge of the health care system functions (structures, policies, regulations, standards and guidelines).
(ii) Practice effectively in various health care delivery settings and systems (hospitals, ministries, NGO's, communities, industry).
(iii) Demonstrate understanding of health facility policies and protocols during health services delivery.
(iv) Employ principles and strategies of cost effectiveness into health service delivery.
(v) Solve health care system challenges when delivering health care services.
(vi) Apply entrepreneurial skills for advancement of practice and the profession.

Competency Domain 8: Professionalism

(i) Maintain professional ethical standards including but not limited to confidentiality, informed consent, practice errors, avoid conflicts of interest).
(ii) Show sensitivity and responsiveness to diversity including but not limited to culture, age, socioeconomic status, gender, religion, and disability).

(iii) Show respect, compassion, and integrity while interacting with patients, teachers, clients, communities and other health professionals.
(iv) Demonstrate accountability to patients, society and the profession when providing health care services.

Competency Domain 9: Scientific Inquiry and critical thinking

(i) Adhere to scientific inquiry procedures in solving problems.
(ii) Apply appropriate research methods when conducting scientific inquiry.
(iii) Evaluate the strength and/or weaknesses of clinical and research findings
(iv) Defend scientific arguments/ clinical findings.
(v) Apply clinical reasoning to solve health and health related problems.
(vi) Analyse new knowledge, guidelines, standards, technologies, products, or services that have been demonstrated to improve outcomes.
(vii) Evaluates alternative points of views or methodologies.

Appendix 2: Description of Courses in the Programme

(Give outlines of all courses or modules to be taught and learnt within the programme, including a course or modules matrix, in each course. Each course in the programme should be described and structured as in the example given for anatomy, from year one to five Refer also to Annex 3.2 of the Handbook for standards and Guidelines for University Education in Tanzania, 3rd Edition, 2019, section 6.0)

Example of the Course description.

ANATOMY - GROSS ANATOMY AND HISTOLOGY (Code: AN 100)

Course Title:

Course aim:

Course expected learning outcomes
At the end of the course, learners will be able to: -
(List the Learning outcomes of the course – CLOs)

Course status: CORE
Course credits:
Total hours spent:

Organization of the Course

Module	Name	Lecture (Hrs) (35%)	Tutorial/Seminar (Hrs) (15%)	Assignment (Hrs) (10%)	Ind. Studies (Hrs) (10%)	Practical (Hrs) (30%)	Total (Hrs) (100%)	Credits
1.	Gross Anatomy							
2.	Cell biology and histology							
Total								

(The total hours and credits in a course should be similar to those indicated in the course as listed in the Normal Learning matrix – Appendix 2)

Course Content

Module 1.0: Gross Anatomy

Topic	Title	Lecture (Hrs) (35%)	Tutorial/Seminar (Hrs) (15%)	Assignment (Hrs) (10%)	Ind. Study (Hrs) (10%)	Practical (Hrs) 30%)	Total (Hrs) (100%)	Credits
1.								
2.								
3.								
4.								
5.								
	etc.							
19.								
TOTAL								

Course content

(Describe the Course content or in modularized course the modules' content)

Module 1.0: Gross Anatomy

(List the module topics and describe them further)

Module 2.0: Cell biology and histology

Topic	Title	Lecture (Hrs) (35%)	Tutorial/Seminar (Hrs) (15%)	Assignment (Hrs) (10%)	Ind. Study (Hrs) (10%)	Practical (Hrs) (30%)	Total (Hrs) (100%)	Credits
1.								
2.								
3.								
4.								
5.								
	etc.							
16.								
TOTAL								

Module 2.0: Cell biology and histology
(List the module topics and describe them further)

Teaching and Learning Activities: *(That would facilitate achievement of planned learning outcomes).*

Assessment methods: *(Describe assessment method and criteria on how to achieve the learning outcomes for the course that are also aligned to the teaching methods).*

Recommended reading materials (*list of up-to-date textbooks, journals and reference books)*

Textbooks *(Example):*

(i) Anthony Mescher: Junqueira's basic histology: text and atlas, McGraw-Hill Medical: Publisher, London.

Reference materials *(Example)*

(i) Richard L. Drake, Wayne Vogl, Adam W. M. Mitchell & Henry Gray: Gray's Anatomy for Students, Churchill Livingstone/Elsevier: London.

Appendix 3: Normal Learning Matrix for BSc Nursing Programme

(Describe each course and include Course Title, Code, whether the course is core or electives/optional, etc. N.B. the % of the time to be assigned can be determined with the help of table 5 in UQF. However, that as students start clinicals, practical training hours increase proportionately).

Semester 1 Year 1									
Course Code	**Course name**	**Core or elective**	**Lecture (Hrs) (35%)**	**Tutorial/ Seminar (Hrs) (15%)**	**Assignment (Hrs) (10%)**	**Ind. Study (Hrs) (10%)**	**Practical (Hrs) (30%)**	**Total (Hrs) (100%)**	**Credits**
	Gross Anatomy and Histology								
	Biochemistry and Molecular Biology								
	ICT & Communication skills								
	Professionalism & Ethics in Health and Research								
Total								**658**	**65.8**

Semester 2 Year 1									
Course Code	**Course name**	**Core or elective**	**Lecture (Hrs) (35%)**	**Tutorial/ Seminar (Hrs) (15%)**	**Assignment (Hrs) (10%)**	**Ind. Study (Hrs) (10%)**	**Practical (Hrs) (30%)**	**Total (Hrs) (100%)**	**Credits**
	Physiology								
	Behavioural Sciences								
	Principles of Nursing								
Total								**658**	**65.8**

Semester 3 Year 2									
Course Code	**Course name**	**Core or elective**	**Lecture (Hrs) (35%)**	**Tutorial/ Seminar (Hrs) (15%)**	**Assignment (Hrs) (10%)**	**Ind. Study (Hrs) (10%)**	**Practical (Hrs) (30%)**	**Total (Hrs) (100%)**	**Credits**
	Microbiology & Immunology								
	Parasitology & Entomology								
	Biostatistics & Epidemiology								
	Health System and Development								
Total								**658**	**65.8**

Semester 4 Year 2									
Course Code	**Course name**	**Core or elective**	**Lecture (Hrs) (30%)**	**Tutorial/ Seminar (Hrs) (15%)**	**Assignment (Hrs) (10%)**	**Ind. Study (Hrs) (10%)**	**Practical (Hrs) (35%)**	**Total (Hrs) (100%)**	**Credits**
	Basic and Clinical Pharmacology								
	Leadership, Management & Entrepreneurship								
	Teaching and Learning in Clinical Practice								
	Community Health Nursing								
	Basic and Clinical Nutrition								
Total								**658**	**65.8**

Semester 5 Year 3									
Course Code	**Course name**	**Core or elective**	**Lecture (Hrs) (25%)**	**Tutorial/ Seminar (Hrs) (15%)**	**Assignment (Hrs) (10%)**	**Ind. Study (Hrs) (10%)**	**Practical (Hrs) (40%)**	**Total (Hrs) (100%)**	**Credits**
	Medical & Surgical Nursing								
Total								**658**	**65.8**

Semester 6 Year 3									
Course Code	**Course name**	**Core or elective**	**Lecture (Hrs) (25%)**	**Tutorial/ Seminar (Hrs) (15%)**	**Assignment (Hrs) (10%)**	**Ind. Study (Hrs) (10%)**	**Practical (Hrs) (40%)**	**Total (Hrs) (100%)**	**Credits**
	Midwife								
	Mental Health Nursing								
	Paediatric Nursing								
	Research Proposal Development								
Total								**658**	**65.8**

Semester 7 Year 4									
Course Code	**Course name**	**Core or elective**	**Lecture (Hrs) (25%)**	**Tutorial/ Seminar (Hrs) (15%)**	**Assignment (Hrs) (10%)**	**Ind. Study (Hrs) (10%)**	**Practical (Hrs) (40%)**	**Total (Hrs) (100%)**	**Credits**
	Paediatric Nursing Practice								
	Community health nursing Field								
	Midwifery Practice								
Total								**658**	**65.8**

Semester 8 Year 4									
Course Code	**Course name**	**Core or elective**	**Lecture (Hrs) (25%)**	**Tutorial/ Seminar (Hrs) (15%)**	**Assignment (Hrs) (10%)**	**Ind. Study (Hrs) (10%)**	**Practical (Hrs) (40%)**	**Total (Hrs) (100%)**	**Credits**
	Research Report Writing								
	Mental Health (Forensic Psychiatry Field)								
	Medical-surgical nursing practice								
Total								**658**	**65.8**

Appendix 4: BSc Nursing Programme Milestones

Competency domain 1: Professional Knowledge

Sub-domain	Semester 2	Semester 4	Semester 6	Semester 8
Basic and social sciences	Explain basic anatomy and physiology of the human body, and microbiology	Relate anatomical and pathophysiology with patients 'condition	Evaluate care based on the anatomical and physiological changes of the patients	Employ knowledge of basic sciences when providing care and services to patients/clients.
Fundamentals of Nursing	Demonstrate skills in basic nursing procedures	Practice skills in advanced nursing procedures	Apply fundamentals of Nursing in caring for patients.	Apply principles governing nursing practice
Physical, psychological and socio-cultural factors in disease	Identify physical, psychological, and socio-cultural factors of disease	Employ knowledge of physical, psychological, and socio-cultural factors of disease while caring for patients in the hospital	Employ knowledge of physical, psychological, and socio-cultural factors of disease while caring for patients/clients in various health care settings and the community.	Plan strategies to prevent and manage common health challenges using knowledge of physical, psychological and socio-cultural factors.
Medical conditions prevalent in Tanzania	Explain basic structure and physiology of the human body.	Recognize communicable and non-communicable diseases.	Provide care to patients/clients with communicable and non-communicable diseases.	Employ knowledge of the causes, pathophysiology and management of diseases and conditions in providing nursing care/service
Surgical conditions prevalent in Tanzania	Explain basic structure and physiology of the human body.	Identify basic surgical conditions common in Tanzania. Provide basic nursing care for surgical patients.	Provide care to patients/clients with surgical conditions.	Employ the principles of perioperative nursing care

Sub-domain	Semester 2	Semester 4	Semester 6	Semester 8
Reproductive and maternal health	Explain anatomical and physiological causes of obstetrical and gynaecology conditions.	Discuss causes, interventions and basic nursing care for OB-GYN patients.	Evaluate best practices for provision of reproductive and maternal health conditions including interventions for obstetric emergencies	Apply principles and concepts related to reproductive and maternal health
Medical and surgical conditions common to children Tanzania	Explain anatomical and physiological causes of childhood conditions.	Discuss causes, interventions and nursing care for children with medical and surgical conditions	Evaluate best practices for provision of care to children with medical and surgical conditions	Appraise common conditions during childhood and motherhood in Tanzania appropriately to care for childhood and motherhood conditions.
Control and prevention of disease and health related problem	Describe common control and preventive measures of communicable and no communicable diseases	Evaluate common control and preventive measures of communicable and no communicable diseases		Apply different control and prevention strategies of common health and health related conditions with a focus on HIV
Critical clinical reasoning and decision making	Demonstrate knowledge of basic science and basis for effective communication	Reflect on the nursing process as a problem solving tool.	Appraise clinical practice, utilize critical reasoning and reflective thinking to identify issues and opportunities.	Apply clinical reasoning to solve clinical problems

Competency domain 2: Practical/Clinical Skills

Sub-domain	Semester 2	Semester 4	Semester 6	Semester 8
History taking and physical examination of the patient	Understand principles of physical examinations and history taking.	Perform patient/client history taking and assessment with supervision from Registered Nurses	Perform history taking and complete assessment of the patient with minimum supervision from Registered Nurses	Gather complete and focused patient information, in a systematic manner, appropriate to the clinical situation and patient or relative's ability to understand.
Clinical procedures and sterile techniques	Understand the cycle of infection and basic principles of infection control.	Provide care with supervision, to patients undergoing clinical procedures. Apply sterile techniques when applicable.		Demonstrate and maintain prevention and infection control measures
Proper use of medical/nursing equipment	Understand various medical/nursing equipment and their use	Use properly various medical/nursing equipment during provision of care		Demonstrate the appropriate use of medical/nursing instruments, equipment and supplies
Interpretation of clinical laboratory investigations relevant for patient care.	Describe principles of specimen collection.	Demonstrate principles of specimen collection, under supervision.		Collect specimens with all skills of that procedure
	Explain chemical basis of human life.	Recognize different microorganisms causing disease.	Describe normal clinical laboratory parameters.	Interpret clinical laboratory results correctly.
Provision of holistic care using nursing process	Describe the concept of holistic care approach in nursing care process	Apply holistic care approach while using nursing care process		Provide holistic patient/client care using nursing process, principles and theories across the life span.
Nursing care of	Demonstrate ability to provide	Provide basic	Provide nursing care	Provide developmentally

Sub-domain	Semester 2	Semester 4	Semester 6	Semester 8
patients	nursing care in the Skills Laboratory.	nursing care.	in health facilities and the community.	specific and age appropriate nursing care during reproductive, childhood, adolescent and geriatric services
Medical and surgical nursing procedure	Explain the principles applied in performing medical and surgical nursing procedures	Apply checklist in performing medical and surgical nursing procedures		Perform common medical/surgical nursing procedures and alleviate patient's pain associated with procedures.
Health promotion strategies and approaches	Describe health promotion strategies and approaches in engaging communities to improve health and health related issues.	Apply health promotion strategies and approaches in engaging communities to improve health and health related issues.		Utilize health promotion strategies and approaches to engage communities to improve health and health related issues.

Competency domain 3: Relationships with Patients, Clients and Communities

Sub-domain	Semester 1-2	Semester 3-4	Semester 5-6	Semester 7-8
Communication with patients, clients and communities	Demonstrate ability to communicate professionally in the classroom.	Take history of patients/clients with various problems in the health care setting.	Communicate as part of a health care team to facilitate care of the patient/client in various health care settings and the community.	Establish constructive (therapeutic/professional) relationships with clients and or communities in order to address their health needs and preferences
Provision of	Describe	Apply principles of counselling in		Provide counselling for

counselling	approaches used during counselling	providing counselling to clients		health and health related issues
Service provision	Demonstrate professional communication in the classroom. Design simple health promotion materials.	Demonstrate health teaching with patients in the hospital setting.	Design teaching and learning materials. Demonstrate competent communication with community leaders and members about community issues.	Provide health services to individuals and groups that are appropriate to their different backgrounds.

Competency domain 4: Intra and inter-professional practice and collaboration

Sub-domain	Semester 2	Semester 4	Semester 6	Semester 8
Contribution to team work	Demonstrate therapeutic listening and peer evaluation skills in the classroom.	Demonstrate ability on receiving peer feedback.	Demonstrate therapeutic listening and supportive peer evaluation skills in the health care setting.	Apply professional knowledge to contribute effectively to teamwork to deliver client centred care
Respecting colleague	Participate fully in group assignments.	Contribute effectively in work teams of fellow students, and instructors in the health care setting.	Contribute effectively in work teams of fellow students of different cadres and instructors in the health setting and community.	Demonstrate respect for, roles/responsibilities and expertise of other professionals to improving the health of the population.
Working in collaboration	Contribute effectively in work teams of fellow	Contribute effectively in work teams of fellow students	Establish collaborative and constructive	Collaborate with others to develop an intervention plan that takes into accounts

Sub-domain	Semester 2	Semester 4	Semester 6	Semester 8
	students, and instructors in the health care setting.	of different cadres and instructors in the health setting and community.	working relationships with all cadres of the health care team.	determinants of health, available resources and range of activities that contribute to health

Competency Domain 5: Communication skills

Sub-domain	Semester 2	Semester 4	Semester 6	Semester 8
Deliverance of health promotion	Design a simple health promotion messages	Discuss health promotion with patients	Describe principles of teaching and learning using a variety of teaching strategies with emphasis on different groups in the clinical setting and community	Deliver effective health promotion messages to educate communities
Presentation of scientific communication	Make oral presentations to fellow students in the class room.	Debate on contemporary health issues in order to contribute to informed discussion and debate.	Prepare a lesson and facilitate in clinical settings.	Communicate effectively scientific findings (oral and in written form) professionals in clinical settings.
Communication of health issues and policies	Make oral presentations to fellow students in the class room.	Debate on contemporary health issues in order to contribute to informed discussion and debate.	Present case studies, and teach students and other health professionals in clinical settings.	Communicate effectively with patients, families, and the public on health issues and policies.
Profession communication	Demonstrate ability to give an oral presentation in the class room.	Tailor communications appropriately for colleagues of different cultural backgrounds.	Engage in self-reflective and collegial dialogue about professional practice.	Communicate effectively with colleagues within one's profession or other health professionals

Competency domain 6: Maintaining Good Practice

Sub-domain	Semester 2	Semester 4	Semester 6	Semester 8
Evaluation of one's performance and practice	Evaluate self and peer performance in a classroom setting	Self-evaluate clinical practice with instructor feedback.	Self-evaluate nursing practice using the Nursing Process.	Systematically evaluate one's own performance and practice (reflective practice)
Seeking information necessary to improve nursing practice	Utilize library and ICT resources	Employ patients/clients' suggestions, and government documents	Demonstrate ability to use peer review literature, and relevant community-level resources and experts.	Regularly seek information necessary to improve professional practice (life-long learning)
Evidence based decision making	Appraise health care delivery system in the context of development paradigms	Evaluate strengths, weaknesses and make suggestions to staff and facilities based on experience in a facility.	Utilize and design research to evaluate and determine correct clinical decisions.	Apply evidence in decision making
Formative evaluation	Describe approaches of providing formative evaluation	Accept formative evaluation and feedback to improve practice		Incorporate formative evaluation feedback into daily work practice
Leadership and managerial skills	Demonstrate ability to run a meeting	Provide constructive feedback to peers and instructors.	Show ability to order, store, and distribute supplies, and keep inventory.	Apply leadership and managerial skills
Use of Information Technology	Demonstrate basic ICT skills, including typing.	Practice ICT skills for university assignments.	Apply ICT skills in managing patient data and planning care, and for research, use of HINARI.	Use information technology to optimize learning, health care delivery and education

Accreditation, monitoring, evaluation and audit	Describe accreditation, monitoring, evaluation and audit process used to improve quality care	Apply principles of accreditation, monitoring, evaluation and audit process to improve quality care in health care delivery	Promote accreditation, monitoring, evaluation and audit to provide quality care in health and health related services.
Priority setting and time management	Describe approaches used for priority setting and time management in health care services	Practice priority setting and time management in health care services	Set priorities and manage time to balance professional responsibilities, outside activities and personal life

Competency Domain 7: Working Within the System and Context of Health Care

Sub-domain	Semester 2	Semester 4	Semester 6	Semester 8
Health care system functions and structure	Discuss the interrelationships between university, health care settings and government.	Analyse health delivery systems in the context of current development trends.	Understand the health care policies of the country	Demonstrate knowledge of how the health care system functions (structures, policies, regulations, standards and guidelines)
Working in different health care setting and systems	Work effectively in the classroom.	Work effectively in hospitals and clinics.	Work effectively in the community.	Practice effectively in various health care delivery settings and systems (hospitals, ministries, NGO's, communities, industry).
Leadership and management of the health system	Describe leadership and management skills and process as applied in	Apply leadership and management skills in planning, coordinate implement, monitoring and evaluating health service delivery and		Demonstrate leadership skills in managing health care delivery within the

Sub-domain	Semester 2	Semester 4	Semester 6	Semester 8
	health system	health interventions within the health care system.		healthcare system.
Cost effectiveness of health care	Discuss economic crisis and structural adjustment and aid programmes	Recognize considerations of cost effectiveness in the health system and community.	Demonstrate cost effectiveness in budgeting	Employ principles and strategies of cost effectiveness into health service delivery.
Promotion of quality care through audits, accreditations and evaluations	Demonstrate understanding of evaluations.	Describe principles of management in health care delivery	Evaluate the role of audits, accreditations and evaluations of health care facilities.	Promote quality care in health systems through audits, accreditations and or evaluations.
Identification of system challenges, errors and solutions	Examine the links between social and political developments and health in Africa.	Describe principles of good governance in the health care system.	Discover possible solutions to challenges, errors in health care systems	Report / errors health care system challenges when delivering health care services
Entrepreneurial skills	Describe concept of entrepreneurship as applied in health profession	Consider principles of entrepreneurship in advancing practice and profession		Apply entrepreneurial skills for advancement of practice and the profession

Competency domain 8: Professionalism

Sub-domain	Semester 2	Semester 4	Semester 6	Semester 8
Maintenance of ethical standards in patient care	Describe implications of ethical principles and values which govern the practice of health professionals.	Describe the codes, regulations and standards which govern the practice of nursing.	Facilitate obtaining appropriate informed consent	Maintain professional ethical standards including but not limited to confidentiality, informed consent, practice errors, avoid conflicts of interest)
Sensitivity and responsiveness to diversity	Demonstrate communication skills with those who have special needs	Demonstrate on-going sensitivity and responsiveness to patient's religion, culture, age, gender, and disabilities		Show sensitivity and responsiveness to diversity including but not limited to culture, age, socioeconomic status, gender, religion, and disability)
Respect compassion and integrity	Describe ethical care of the individual by health care providers.	Demonstrate respect, compassion, accountability, dependability, and integrity when interacting with peers, other health professionals, patients, and their families		Show respect, compassion, and integrity while interacting with patients, teachers, clients, communities and other health professionals
Professional accountability	Describe accountability measures applied in provision of health care services	Apply accountability measures when providing services to the patients and community		Demonstrate accountability to patients, society and the profession when providing health care services.

Competency domain 9: Scientific Inquiry and critical thinking

Sub-domain	Semester 2	Semester 4	Semester 6	Semester 8
Adherence to scientific inquiry procedure	Describe concept of scientific inquiry	Apply scientific inquiry procedures in solving problem		Adhere to scientific inquiry procedures in solving problems.
Applied research activities	Understand the value of evidence-based nursing practice.	Practice statistical research concepts.	Write a research proposal using peer reviewed literature.	Apply appropriate research methods to conduct scientific inquiry
Critiquing clinical and research findings	Describe steps for critiquing clinical and research findings	Analyses research evidence for its strength and weakness		Evaluate the strength and/or weaknesses of clinical and research findings.
Defending scientific arguments/ clinical findings	Describe steps for defending scientific arguments/ clinical findings	Engage in discussion for research/clinical findings		Defend scientific arguments/ clinical findings
Clinical reasoning	Describe steps for developing clinical reasoning	Practice clinical reasoning approaches in solving problems during clinical practices		Apply clinical reasoning to solve health and health related problems.
Analysis of new knowledge and evidence	Describe steps for conducting critical analysis of new knowledge and evidence	Practice critical thinking during reviewing clinical guidelines and new research evidence		Analyse new knowledge, guidelines, standards, technologies, products, or services that have been demonstrated to improve outcomes
Evaluation of alternatives	Describe steps for problem solving approach used in clinical practices and research	Practice problem solving in clinical practices		Evaluates alternative points of views or methodologies

Appendix 5: List of Minimum Practical and Procedural Skills for Nursing Graduates

(a) Minimum Essential nursing Procedural skills

Fundamental Nursing Procedures
Apply nursing theoretical models
Design a nursing care plan
Take patient`s history
Perform physical assessments including head to toe assessments
Conduct assessment by using ABCDE approach
Perform hand hygiene i.e. Surgical scrubbing and routine hand-washing
Donning and doffing personal protective equipment (PPE).
Checking of vital signs- Temperature, Pulse, Blood pressure
Perform bed bath- Bed bath, skin massage to prevent
Perform mouth care for the unconscious patient
Provide patient safety, comfort, and body hygiene
Utilize principles of body mechanics in positioning, turning patient.
Admit, transfer and discharge patients
Insert nasal gastric tube
Collect specimen e.g. urine, sputum, stool
Administer patient's medications (all routes).
Assessing level of Consciousness using Glasgow Coma Scale
Perform suctioning (orally, NP)
Perform blood transfusion and blood products
Insert nasogastric tube (NGT) for feeding, gastrostomy feeding, parenteral feeding
Perform bed-making- Occupied, unoccupied bed,
Measure weight and height
Use correct techniques for lifting, moving, and handling, including frail patients
Put a patient in recumbent, semi-recumbent, Fowler's, lateral, lithotomy and prone positions.
Collect specimen

Insert and remove urethra catheter
Insert intravenous cannula
Insert infusion line
Insert suppositories
Perform stitch removal
Assess patients pain using Numerical Rating Scales (NRS), Verbal Rating Scales (VRS), Visual Analog Scales (VAS), and the Faces Pain Scale-Revised (FPS-R)
Assess level of consciousness using the Glasgow Coma Scale (GCS)
Perform airway suction
Perform bladder irrigation
Conduct a complete and focused mental status examination
Conduct a mental health history
Conduct a suicide assessment
Perform CPR
Interpret ECG, EEG,
Interpret lab results Hb, RBG, FBG, FBP
Conduct last office
Conduct counselling
Medical surgical Nursing Procedures
Perform wound dressing
Remove stitches
Perform ostomy care
Prepare patient for various investigations (lumber puncture, abdominal paracentesis, bone marrow aspiration, biopsy)
Instruct patient to perform coughing and deep breathing exercises
Prepare a patient for surgery
Assess and manage pain
Provide care to a patient with under water seal drainage
Provide care to a patient with closed chest drainage
Perform Tracheostomy care
Perform colostomy care
Prepare and assist in various orthopedic procedures (skin traction, skeletal traction, P.O.P, external fixator, craniotomy)
Manage burns

(a) Minimum Essential nursing therapeutic skills

Prepare and administer medication
Calculate medication dose
Administer blood transfusion
Prepare and administer injectable drugs
Administer intramuscular injection
Initiate intravenous therapy e.g., NS, RL, DNS, D5% etc.
Administer intravenous injection
Administer subcutaneous and intradermal injection
Administer appropriate blood transfusion
Administer oxygen therapy
Apply eye/ear drops

(c) Minimum Essential Midwifery Skills

Perform abdominal assessment for fetal position and descent
Conduct normal vaginal delivery
Perform a pregnancy test
Calculate the gestational age and estimated date of delivery
Monitoring of labour using partograph
Perform a complete and accurate pelvic examination (for: Dilatation, Descent, Presenting part, Position, Status of membranes, Adequacy of pelvis for SVD)
Administer parenteral anticonvulsants for preeclampsia and eclampsia (initial loading dose) /Administer anticonvulsant (IV/I/M $MgSO_4$)
Conduct PMTCT counselling and consent for testing
Check fetal heart rates (FHH)
Conduct abdominal examination
Perform per vaginal examination (PV)
Perform assisted breech delivery
Positioning A Woman to Relieve Pressure on the cord
Perform episiotomy and repair of perineal tear.
Administer local anesthetic drugs
Perform active management of 3rd stage of labour (uterotonics, massage uterus, early cord cramping and controlled Cord traction)

Perform manual Vacuum Aspiration (MVA)
Perform manual extraction of the placenta
Measure blood loss (PPH)
Inspect the vagina and cervix for lacerations and tears
Inspect the placenta and membranes for completeness
Examine the placenta
Perform physical examination of the new-born
Insert IUD

(d) Minimum Essential Administrative and Research skills

Design staff duty roster
Plan for resources
Demonstrate teaching skills
Obtain informed consent for procedures
Supervise nursing care
Recruit staff
Prepare budget
Plan for patients discharge
Conduct mentoring and coaching
Develop staff training plans
Keep inventory of medical/nursing equipment and supplies
Manage organization resources
Appraise staff performance
Enforcing implementation of care protocols and policies
Conduct audits as a quality control measure
Perform data analysis using SPSS, STATA
Conduct operational research
Manage community health resources
Utilize patient education materials
Utilize medical records

22 Suskie L: Assessing Student Learning: A Common-sense Guide, 2nd ed (San Francisco: Jossey-Bass), 167, 2009