

Paper Title: Assessment Plan as an Effective Assessment Instrument for Monitoring Attainment of Learning Outcomes: Application under Competence/Outcomes-Based Education and Training (CBET/OBET) System in Tanzania”

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ABSTRACT

In recent years, greater attention is directed to assess quality of graduates from different institutions based on their ability to do the job trained for, than certificates they possess. Quality learning takes place when students are able to improve their mental abilities and change their mindsets and habits to become competent graduates.

In Tanzania, technical educational and training system has been re-defined and structured so that it produces competent graduates. This development led to introduction of Competence/Outcomes-Based Education and Training (CBET/OBET) system, and thus replacing Knowledge-Based Education and Training (KBET) system. This new paradigm shift ensures institutions of breeding competent graduates who can compete in real world.

CBET/OBET curriculum is structured in such a way that it addresses expectations of the labour market; and that teaching and learning system strives to impart students with requisite skills, knowledge, and attitudes demanded by the labour market and the society. Emphasis is placed on ensuring that standard of qualifications is stable and responds flexibly to labour market demands.

Assessment under CBET/OBET requires that all learning outcomes specified in any curriculum are assessed. Assessing all learning outcomes assures that students understand all pertinent issues specified by the curriculum. NACTE assures this using an “assessment plan” for quality assessment for students to attain required competencies. The plan helps the trainer to assess all learning outcomes specified within a curriculum.

This paper explores the use of the assessment plan to assess all learning outcomes within the curriculum.

1.0 INTRODUCTION

The National Council for Technical Education (NACTE) is a statutory body established by Act of Parliament No. 9 of 1997. The role of NACTE is to oversee and coordinate the provision of technical education and training in Tanzania. Technical education and training is considered as an essential element for capacity and competence building in developing countries like Tanzania. The strategic importance of technical education and training to social and economic developing of countries lies in the fact that it provides the necessary knowledge and skills for the exploitation of potentials of a country through application of science and technology. Technical education avails a country with a critical mass of technicians and technologists required for managing and spearheading the development activities in various sectors of industry and business. Technical education in this context is defined as education and training undertaken by students to equip them to play roles requiring higher levels of skills, knowledge and understanding and in which they take responsibility for their areas of specialisation (URT, 1997).

Technical education and training may contribute effectively to the economic and social development of a country if it is so regulated and coordinated that it can respond flexibly to the rapidly changing needs of the labour market, technologies and globalization forces. In recognition of the aforementioned strategic requirement NACTE introduced, in its technical education and training system, competence/outcomes-based education and training (CBET/OBET) curricula. The curricula developed require training programmes to be based on the labour market analysis data. This implies that curriculum design and development or review must be based on industry-related occupational analysis.

This kind of curricula adopt assessment type which is flexible targeting confirming attainment by students of ability to show competence in performing the job/duties in real or simulated occupational environment. NACTE advocates training programmes that are closely linked to labour market requirements and delivered in modular format. In order for a student to successfully complete the training programme, he/she must demonstrate attainment of skills, knowledge and understanding enabling performance of duties in the relevant occupational sector.

The popularity of CBET/OBET lies on its capability to reduce the gap between the training system and labour market. Many educationists, researchers (Shepard, 2000, Ross, 2000, ESAURP, 1993) and the society agree that making people competent has a more positive and practical relevancy than making-up for their knowledge deficit. Therefore, the approach matches well with the culture of advancement and empowerment espoused by many in educational practice (Marsh, 2004, Stenhouse, 1975, Watkins et al, 1996). Also, trainers feel that because of its practical relevancy, CBET/OBET can motivate students to finish their training much more reliably than traditional education. Furthermore, through direct contact with work organisation, institutions can notice quickly the change in technology, jobs and occupations and hence respond quickly to the labour market demands.

In Tanzania, the shift from knowledge-based education and training (KBET) to CBET/OBET system is influenced by the Development Vision 2025, which advocates Tanzania to be a nation with high level of education at all levels and which produces the quantity and quality of people sufficiently equipped with requisite knowledge and skills to meet the challenges of development at local and international levels (URT, 1991). It is hoped that by adopting the CBET/OBET system, technical institutions will be able to produce people who are competent in their workplaces and who can spearhead the country to its desired vision.

2.0 COMPETENCE/OUTCOMES-BASED EDUCATION AND TRAINING SYSTEM

A Competence/Outcomes-Based Education and Training System is a system of education and training that is designed to ensure that upon graduation from the system, a learner possess the requisite competencies that can be applied flexibly in relevant workplaces.

Generally, CBET/OBET is intended to realize the purpose and values of learning in an institution in a better way than a conventional or sometime referred to as the Knowledge-Based Education and Training (KBET) system could achieve. This is because CBET/OBET targets to serve both the learners in institutions of learning and the market (employer, profession, society, Government) by ensuring that the former is provided with competences or outcomes that meet the needs and interests of the latter. At the middle is the provider of education and training who has to realize the aspirations of the learners while taking into consideration the employers' expectations. Central to all these aspirations under CBET/OBET is the role of quality assurance organs (regulators) which set competence standards that will ensure the interests of all relevant parties are met. A competence standard usually includes what a person should be able to do, the way in which one can judge if what was done was done well, the conditions in which a person must demonstrate his/her competence, and the types of evidence necessary and sufficient to assure that what was done, was carried out in a consistent manner and based on effective knowledge and understanding, depending on particular job requirements.

2.1 What is Competence?

CBET/OBET is implemented in various countries in the world. Although the term "Competence" may be defined and in fact is defined differently in different countries, the ultimate goals of CBET/OBET are more or less the same (NACTE, 2004d).

- (a) For example, in Australia, competence is conceived as a complex structure of attributes necessary for the performance of specific situations. It is a complex combination of attributes such as knowledge, attitudes, values and skills and the tasks that must be performed in determined situations.
- (b) In the Republic of South Africa, competence is defined as the ability to perform tasks, to understand the theory underpinning the tasks and the ability to pass reasoned judgment on different ways to perform the tasks.
- (c) A person who is recognized to possess competence in Germany is considered that who has knowledge, skills and aptitudes needed to exercise a profession, can solve professional problems in an autonomous and flexible way, is able to collaborate in his or her professional environment.
- (d) International Labour Organization (ILO) has defined competence as the aptitude to carry out a specific task or job position effectively.
- (e) In the United Kingdom (UK), competence is defined as labour achievements a learner is capable of, in terms of knowledge and skills and the field of application of such competence.

From the various definitions of competence quoted above, three attributes are clear. Competence is associated with clear ability to successfully carry out some occupational activity and it is described in terms of: (i) Skills', knowledge', and understanding'; (ii) Typical context and level that a person who possesses the competence could work in; and (iii) Wider attributes (conducts or attitudes). As such, it is critical to also clarify the definitions of key components of a competence, namely: 'skills', 'knowledge', 'understanding', 'context', 'level', and 'wider attributes' (NACTE, 2004d).

While skill is defined by the ability to do specific things without necessarily understanding the processes by which one does them (practical component of competence), knowledge is regarded as information that has been gathered and recorded in one's memory and that which can be recalled in responding to a question (theoretical component of competence). In some way, understanding combines skill and knowledge as it involves grasping of concepts and being able to use them creatively through a clear realization of what one is doing and why (foundational component of competence). The three components of competence described above are normally referred to as applied competencies. These are usually evaluated by the application of written or oral tests (for knowledge and understanding) and/or exercises of practical tasks applicable to a job function (for skill).

On the other hand, wider attributes represent behavioural component of competence and cover the many of the desired workplace attitudes/conducts and life skills necessary for success in one's occupation/life within the modern global economies. In contrast to applied competencies, wider attributes are detected through the realization of simulated exercises of critical situations. The learners are placed before a fictitious event, previously designed and their reactions are examined, determining if they exhibit the desired attitudes.

In order to assure quality as well as facilitating uniform interpretation of qualifications amongst stakeholders and hence transfer of credits under CBET/OBET, competencies (mainly the applied competencies and to lesser extent the wider attributes) are standardized within the overall description of curriculum.

3.0 CBET/OBET CURRICULUM DEVELOPMENT PROCESS IN TANZANIA

Curriculum has been defined in different ways depending on how a person conceives its implications (Marsh, 2004, Kelly, 2004, Bobbitt, 1918). However, a definition that considers the scientific aspects of the curriculum development process considers a curriculum as a body of prescribed educative experiences designed to provide an individual with the best possible training and experience to fit him/her in the society or to qualify him for a profession.

The key questions addressed in the development or revision of Competence/Outcomes-Based Education and Training curriculum are:

- (a) What do students want to learn?
- (b) Why do they want to learn it?
- (c) How can you best help students learn it?
- (d) How will you know what they have learnt?

In order to address the above questions, Competence/Outcome-Based Education instructional planning process should be a reverse of that associated with traditional/conventional educational planning. The desired outcomes are selected first and specific competences identified. The curriculum, instructional materials and assessments are created to support the intended outcomes. All curriculum and teaching decisions are made based on how best to facilitate the desired final outcomes.

Any good curriculum must show the following attributes:

- (i) Planned learning experience (acquires intellectual skills, motor skills and attitudes);
- (ii) Elements of teacher guidance (instructional design, implementation, evaluation, improvement and guidance to transfer); and
- (iii) Objective oriented outcomes (based on the needs of society, learners, profession and labour market).

3.1 Structuring CBET/OBET Curriculum

Structuring CBET/OBET curriculum follows after situational analysis and qualification standards, including assessment criteria, have been completed. It requires one to define or develop learning outcomes, related tasks, assessment methods and instruments, modularisation and semesterisation of the curriculum.

- (a) Assessment Criteria

Assessment criteria form one of the four NACTE qualification standards (i.e. purpose of a qualification, principal learning outcomes, assessment criteria, and credit guidelines). Assessment criteria are

statements that clearly indicate what learners are expected to do in order to demonstrate that they have successfully realized a Principal Learning Outcome. Assessment criteria provide context for learners to achieve the sub-enabling outcomes of the curriculum. They are required mainly to assist NACTE to check that the assessment is compliant with the standards set in the qualification and assist the training institutions in developing corresponding assessment tasks. Each criterion should be benchmarked to indicate the learner's mastery of given competences.

The following format is used to frame assessment criteria statements:

Noun(s) (placed in front to give the statement a passive character) + Verb(s) (in past tense to indicate that an outcome has already been realised) + Modifying Phrases, when necessary.

Noun + Verb in past tense + Modifying Phrases

Example: Systematic and comprehensive patient history and physical examination are taken according to recommended medical practices.

(b) Learning Outcomes

Learning outcomes are the specific intentions of a programme or module describing what a student should know, understand, or be able to do and they are categorised into three levels: principal outcomes, enabling outcomes and sub-enabling outcomes. Statements of learning outcomes must be **verifiable** and **assessable**.

(i) Enabling outcomes

These are outcomes that enable the achievement of higher-level principal outcomes. They are more focused statements that describe the knowledge, skills and understanding that learners will develop after following a curriculum.

NACTE recommends at least three (3) enabling outcomes per principal outcome. The enabling outcomes are formulated by curriculum developers.

(ii) Sub-enabling outcomes

These are more specific (initial) competencies obtained by disaggregating each of the enabling outcomes. They are formulated by curriculum developers, and are vital in developing curriculum modules.

(c) Related Tasks

These are specific activities that a learner will have to perform in order to demonstrate that he/she has achieved set outcome (sub-enabling outcome). Related tasks are statements that show what and how learners will be doing to achieve the sub-enabling outcomes. An assessment of mastery of an outcome is based on the learner's capability to perform tasks.

(d) Benchmarking

A benchmark is a point in time (e.g., 4th grade) that may be used to measure student's progress. Benchmarks are designed to help educators organize and make sense of a complex process of interaction between the student, the teacher, and the learning process (Washington, 2006).

A benchmark statement, in higher education, provides a reference point against which outcomes can be measured and refers to a particular specification of programme characteristics and indicative standards (Glossary of Assessment Terms, 2009).

According to NACTE, benchmarking is a formal process of measuring and comparing products, processes, or services of a technical institution against those of the top performing similar establishments in the country and beyond. As part of the Institutions Quality Assurance process, the institutions will be expected to demonstrate that they have considered and addressed the benchmarks and that the standards they set in each course exceed those set in the benchmarks. That way, benchmarks shall be used as “points of reference” for making judgments on academic standards of institutions accredited by NACTE (NACTE, 2004c).

In assessment, benchmark statements are used to help/guide a trainer to determine how well students have progressed in acquiring anticipated competencies.

Example:

Assessment Criteria: Systematic and comprehensive patient history and physical examination are taken according to recommended medical practices.

Benchmark Statements: A learner: Has knowledge of/ ability to/can...

Satisfactory:

- Establish good rapport,
- Seek informed consent, and
- Determine core complaints history appropriately

Good:

- Establish good rapport,
- Seek informed consent,
- Determine core complaints,
- Obtain detailed history,
- Perform detailed symptom analysis, and
- Demonstrate respect and dignity to clients.

Excellent:

- Establish good rapport,
- Seek informed consent,
- Determine core complaints determined,
- Obtain detailed history obtained appropriately and accurately,
- Perform detailed symptom analysis,
- Demonstrate respect and dignity to clients,
- Conduct physical examination accurately and systematically, and
- Record patient’s history and findings systematically.

4.0 ASSESSMENT OF OUTCOMES IN CBET/OBET CURRICULUM UNDER NACTE

Under the National Council for Technical Education (NACTE), assessment is organised around assessment criteria specified in the respective curriculum. Assessment helps to determine how much students have progressed in acquiring competencies necessary for their future profession. The assessment criteria are statements that clearly indicate what learners are expected to do in order to demonstrate that they have successfully realised a learning outcome. They mainly assist examiners and moderators to check that assessment is compliant with standards set in the qualification. Thus, for each learning outcome assessment criteria are formulated to reflect that learners can perform (do) something, can understand what they are doing and why they are doing it, and can connect these as application of knowledge and, furthermore, can pass judgment on performance. The assessment criteria are applied through various assessment methods and instruments as appropriate to include questioning, observation, and evaluation of product (NACTE, 2004a). It is stressed within various NACTE documents (NACTE, 2004a; 2004b) that student learning outcomes should be accurately, effectively and fairly assessed and documented. Technical institutions are required to develop and implement policies and procedures to ensure that all assessment practices are valid, reliable, consistent, fair, and allow vertical and horizontal progression of the learners (NACTE, 2004a).

Assessment also plays a vital role in assuring the quality of provision in technical institutions, thus it is a tool for monitoring institutions' accountability. NACTE (2005b) has developed examinations procedures, guidelines and regulations specifying minimum conditions in conducting and managing examinations. Technical institutions are required to adopt or improve them for a sound assessment system; and the same are evaluated to establish compliance to quality assessment.

4.1 Administration of assessment under NACTE

The learning outcomes for any NTA curriculum may be assessed either under Continuous Assessment (CA) component, or under Semester Examination (SE) component. In NTA curricula weighting of assessment components may normally vary within the following limits, for courses that contribute credits towards the awards: Continuous Assessment component: 40% – 50%; and Semester Examination component: 50% – 60%.

4.2 Validity in assessment under CBET

Lambert and Lines affirm that “an assessment task is said to be valid when it tests what it sets out to test” (2000, p. 7). Wolf declares that it is valid when “it measures what it is supposed to” (1996, p. 211). Stobart and Gipps (1997) state that there are four types of validity: predictive, concurrent, construct, and content. Predictive validity (Lambert & Lines, 2000, p. 8) measures the extent to which the score on one type of test enables someone to predict a performance later on. Concurrent validity is a measure of the accuracy of two tests that purport to measure the same thing. Construct validity is the notion that for a test to be valid it has to test those attributes it is supposed to. Content validity is concerned with the content being tested. This belongs to an earlier understanding of assessment validity, which “treated validity as a technical property of a test” (Stobart, 2006, p. 2).

The current thinking about validity in assessment focuses on the inferences drawn from the assessment results. Stobart rightly affirms that validity should concern “about the inferences drawn from these results and about the assessment's consequences” (p. 2). More often results, even from tests which are well-constructed, are misunderstood or misused. For example, “to use a maths test as the sole selection mechanism for art school would be invalid” (ibid, p. 3).

NACTE defines validity as the extent to which an assessment measures what is needed for a particular purpose and to which the results, as they are interpreted and used, meaningfully and thoroughly represent the specified knowledge or skill (NACTE, 2005a).

NACTE challenges every technical institution to assess what is specified in the curriculum. Clearly specified assessment criteria and related tasks guarantee that assessment validity may not be compromised. Since each learning outcome has associated assessment criteria, it is thus easy to assess the knowledge or skill or both as well as the underpinning attitudes intended to be measured; and then produce the type of information useful for the intended purposes.

4.3 Reliability in assessment

Reliability works on the “notion that if we test someone then the test will be reliable if the result is exactly the same across all occasions, tasks, observations and settings” (Lambert & Lines, 2000, p. 11). Traditionally, questions about reliability in assessment have asked whether students were likely to respond in the same way to a particular stimulus (such as a test) if it had been presented to them, for example, a week later or in a different but equivalent version. In addition, questions about reliability in assessment ask whether students' responses would have received the same ratings if different people had scored them, or if the same person had scored them at another time.

Broadfoot and Black (2004) correctly affirm that “the quality of any particular assessment is typically addressed in terms of measures of reliability and validity”. Reliability is a necessary condition of validity. An assessment procedure that is not reliable cannot be valid. A test that a student would respond to quite differently one day than the next, say due to student's mood changes due to an argument at institution or home, would not produce trustworthy results. Conversely, an assessment procedure can be reliable but not valid. NACTE defines reliability as the consistency or stability of assessment results. Following from the above concepts, it means the degree to which an assessment is free from errors of measurement (NACTE, 2005a).

4.4 Fairness in assessment

Stobart declares that “fairness is fundamentally a sociocultural, rather than a technical issue” (2005, p. 275). He affirms that fair assessment cannot be considered in isolation from both the curriculum and the educational opportunities of the students. He further discusses that “in developing assessment, the quality of schooling and curriculum” must be fair to all students regardless of where their schools are located. Equivalent learning opportunities must be accorded to all students. If two children are being assessed on something they have not had equivalent opportunities to learn, the assessment is unjust (Gee, 2003, p. 28).

Fairness (NACTE, 2005a) involves assessment procedures that do not discriminate against a particular group of students (i.e. students from various racial, ethnic, or gender groups, or students with disabilities). Thus, assessment should never be biased against particular students, should never contain stereotypes of certain groups, and students of similar ability should be able to score the same regardless of their group membership. Institutions in Tanzania are challenged to ensure that assessment procedures are fair to all students. If students' scores are lowered due to their group membership, assessment procedures are discriminatory. Though all students have access to the requisite curriculum; however, inadequate resources in some institutions compared to others, pose a challenge to fairness.

5.0 THE ASSESSMENT PLAN AND ITS USE IN ASSESSMENT UNDER CBET/OBET

The learning outcomes for any CBET/OBET curriculum under NATE may be assessed either under Continuous Assessment (CA) component, or under Semester Examination (SE) component. In order to realise attainment of competencies by students, NACTE has to ensure that all the learning outcomes specified in a curriculum are assessed. To be able to guarantee the assessment of all learning outcomes, NACTE employs an “assessment plan”.

Generally, the assessment plan is essentially a quality assurance tool, which is used to guide key examiners to link the set tasks of assessment with the learning outcomes. The plan assists the examiners

to maintain the set criteria of assessment and to ensure whether or not the students acquire the required competencies. It also assists to confirm whether the assessment provided is valid, reliable and fair. The assessment plan should therefore show:

- (a) Elements or units of competence or learning outcomes to be assessed;
- (b) When the assessment will occur;
- (c) Where the assessment will take place;
- (d) The assessment methods to be used; and
- (e) The criteria of reporting levels of performance if the same is not specified elsewhere.

5.1 Framework of the Assessment Plan

Assessment plan comprises key elements as given hereunder:

5.1.1 Introduction

This part should describe the focus area of the intended assessment. The following items are considered:

- (a) A module to be assessed;
- (b) The date on which the curriculum was designed;
- (c) If the plan is from the revised curriculum, areas which are replaced or somehow updated are cited for the sake of justifying the change of assessment plan; and
- (d) In some cases introduction of new sections or deletion of sections for the revised assessment plan must also be stated in this part.

A typical example on how to develop the introduction is as shown in **Appendix I**.

5.1.2 Enabling Outcomes to be Assessed

Under this part the following are considered (*See Appendix I for elaboration*):

- (a) Statements on the criteria of assessment assigned to each of the outcome; and
- (b) All enabling outcomes for the module to be assessed.

5.1.3 Sub-Enabling Outcomes to be Assessed

This part should show a list of all sub-enabling outcomes to be assessed for the module under consideration. Tasks set for realisation of the outcomes should be embedded to each of the said outcome in order to guide a moderator of assessment to adhere to the same (*See Appendix I for elaboration*).

5.1.4 Examinations Instructions/Rubric

This is a part where key instructions on the structure of the examination paper are stated. They include:

- (a) Duration of examination paper;
- (b) Sections within the paper and their corresponding marks as per question or section as a whole; and
- (c) Type of questions per section must be stated here; if selection of questions for sections in consideration is allowed, then it should be well stated here (*See Appendix I for elaboration*).

5.1.5 Learning Content to be Assessed

Coverage of examination as per module is stated in this part. All elements constituting learning contents as they appear in the curriculum are listed here (See *Appendix I for elaboration*).

5.1.6 Specification of Competences to be Assessed

This is an examination plan itself. It shows different characteristics of the examination. In this specification, content area to be assessed, tasks associated for each content area and expected competences/outcomes or abilities for each item in the examination area are listed (See *Appendix I for elaboration*).

6.0 CONCLUSION

Competence/Outcomes-Based Education and Training promises provision of quality learning to all education and training institutions in Tanzania, because it facilitates the achievement of the set learning outcomes. The assessment plan is thus instrumental in assessment since it guides the trainer to confirm attainment, by learners, of the required outcomes/competences.

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An Example of the Assessment Plan

MODULE CODE AND NAME: NMT 04101 INFECTION PREVENTION AND CONTROL

QUALIFICATION: NTA Level 4 - Basic Technician Certificate in Nursing

1.0 INTRODUCTION:

This assessment plan has been prepared by NACTE for the module named Infection Prevention and Control. The assessor should assess learning outcomes stipulated within the NTA Curriculum flexibly based on the student’s ability to apply competences involving application of skills and knowledge at routine level under supervision of a licensed nurse.

The assessment plan was developed in June 2010 to be implemented for the first time in the academic year 2010/2011 after the introduction of Competence/Outcomes-Based Education and Training (CBET/OBET) by NACTE.

2.0 ENABLING AND SUB-ENABLING OUTCOMES

Enabling Outcomes (Ability to.....)	Sub-Enabling Outcomes (Ability to.....)
1.1 Differentiate types of micro organisms causing diseases	1.1.1 Explain basic concepts of microbiology
	1.1.2 Describe different characteristics of micro organisms causing diseases
	1.1.3 Enumerate risk factors in nosocomial infection
1.2 Describe ways in which infection is transmitted within various settings	1.2.1 Explain the mode of disease transmission
	1.2.2 Utilize appropriate measures to break the cycle of infection transmission
	1.2.3 Describe the basic factors in the prevention and control of infection
	1.2.4 Describe principles of disease prevention and control
1.3 Utilize the principles of standard precautions in infection prevention and control in clinical setting	1.3.1 Describe the principles of standard precaution in infection prevention and control
	1.3.2 Select appropriate aseptic technique in clinical setting
	1.3.3 Use principles of disposing hazardous and non-hazardous materials

3.0

SPECIFICATION OF COMPETENCES

S/N	Sub-enabling Outcomes and Associated Task	Competence to be Assessed				40	
		Knowledge	Skills	Understanding	Wider attributes	No. of tasks provided under Continuous Assessment and Semester	
						CA	SE
1.	Sub-enabling Outcome: - Explain basic concepts of microbiology;						
	Tasks: - Define the term microbiology	√					√
	- Explain history of microbiology	√				√	
	- Explain the importance of microbiology	√					√
2.	Sub-enabling Outcome; - Describe different characteristics of micro organisms causing diseases						
	Tasks: - List different types of micro organisms	√					√
	- Enumerate the characteristics of different micro organisms	√					√
	- Draw the different shapes of micro organisms		√			√	
	- Explain the functions of micro organisms	√				√	
3.	Sub-enabling Outcome: - Enumerate risk factors in nosocomial infection						
	Tasks: - Explain the Nosocomial infection	√					√
	- Differentiate risk factors in nosocomial infection		√				√
	- Describe infection risks in different health care settings	√					√
4.	Sub-enabling Outcome: - Explain the mode of disease transmission						
	Tasks: - Explain the chain of infection process	√					√
	- Differentiate the routes of disease transmission		√			√	
	- Explain the spread of infection	√					√

S/N	Sub-enabling Outcomes and Associated Task	Competence to be Assessed				40	
		Knowledge	Skills	Understanding	Wider attributes	No. of tasks provided under Continuous Assessment and Semester Exams	
5.	Sub-enabling Outcome: - Utilize appropriate measures to break the cycle of infection transmission					CA	SE
	Tasks: - Describe the components of infection transmission cycle	√					√
	- Explain the ways of interrupting the transmission cycle	√				√	
	- Explain disease transmission cycle	√					√
6.	Sub-enabling Outcome: - Describe the basic factors in the prevention and control of infection						
	Tasks: - List the sources of infection	√					√
	- Explain the body defense mechanisms	√				√	
	- Explain the basic factors in the prevention and control of infection in hospital setting	√					√
7.	Sub-enabling Outcome: - Describe principles of disease prevention and control						
	Tasks: - List the principles and levels of disease prevention and control	√					√
	- Explain the principles and levels of disease prevention and control	√					√
	- Utilize the principles and levels of disease prevention and control		√			√	
8.	Sub- enabling Outcome: - Describe the principles of standard precaution in infection prevention and control						
	Tasks: - Define the term standard precaution	√					√
	- Explain principles of standard precaution of IPC	√				√	
	- Explain purposes of having standard precautions	√					√
	- Utilize the principles of standard precaution in prevention and control of infection		√			√	
	- Revise the set standard precautions for IPC			√		√	
	- Provide information on set standards				√	√	
- Demonstrate the standard precautions				√	√		

S/N.	Sub-enabling Outcomes and Associated Task	Competence to be Assessed				40	
		Knowledge	Skills	Understanding	Wider attributes	No. of tasks provided under Continuous Assessment and Semester Exams	
9.	Sub-enabling Outcome: - Select appropriate aseptic technique in clinical setting					CA	SE
	Tasks: - Define the term hand washing	√					√
	- Explain the importance of hand washing	√					√
	- Demonstrate hand washing procedure				√	√	
	- Define aseptic technique	√					√
	- Explain different types of aseptic technique	√					√
	- Describe principles of aseptic technique in working area	√					√
	- Perform procedures for cleaning clinical settings			√		√	
	10.	Sub-enabling Outcome: - Use principles of disposing hazardous and non-hazardous materials					
Tasks: - Define the terms hazardous and non-hazardous materials	√						√
- List different types of hazardous and non-hazardous materials found in work place	√						√
- Explain the principles of disposing hazardous and non-hazardous materials	√						√
- Demonstrate principles of disposing hazardous and non-hazardous materials at working area				√	√		

The table shows competences expected for each of the learning content and learner's tasks for realisation of the qualification. It assists examination setters and moderators to develop examination papers that maintain the standard of the qualification.

4.0 EXAMINATIONS INSTRUCTIONS/RUBRIC

4.1 Duration, Number of Questions, Marks Distribution, and Sections.

- The duration of the examination will be Two (2) Hours.
- For Semester examination, there will be a total number of Twenty Five (25) questions and candidates will be required to answer ALL, while for the Continuous Assessment, there will be a total number of Fifteen (15) questions, ALL to be attempted.
- The Semester examination will consist of Sections "A", "B" and "C". Section "A" will comprise Ten (10) Multiple Choice Questions, Section "B" will comprise Ten (10) short answer and candidates will be required to answer ALL. Section "C" will consist of Five (5) essay type questions and candidates will be required to answer ALL.
- Each question in Section "A" will weigh 1 mark, Section "B" each will weigh 2 marks while in section "C", each will weigh 5 marks.

A Sample of Examination Paper

NAME OF THE INSTITUTION

(EMBLEM)

END OF FIRST SEMESTER EXAMINATION

BASIC TECHNICIAN (NTA LEVEL 4) CERTIFICATE IN NURSING EXAMINATIONS

NMT 04101 INFECTION PREVENTION AND CONTROL

TIME: 2 HOURS

DATE: .../.../20....

Instructions

- (a) This examination consists of Sections “A” and “B”.
- (b) Section “A” comprises Ten (10) Multiple Choice questions, Section “B” consists of Ten (10) Short Answer questions and Section “C” comprises Five (5) Essay type questions and candidates are required to answer ALL.
- (c) Each question in section “A” carries 1 mark, in section “B” 2 marks, while in section “C”, each carries 5 marks.
- (d) Cellular phones are NOT allowed in the examination room.
- (e) Write your examination number on every page of your answer booklet.

This paper consists of 3 printed pages

SECTION A (10 Marks)

Answer ALL questions from this Section.

In each of the following questions, select the correct answer and write its corresponding letter in the answer booklet provided:

1. Microbiology is defined as a study of:
(A) Living organisms.
(B) Living and non-living organisms. ()
(C) Life and organisms that are too small to be seen with the naked eye.
(D) Macro organisms.

2. The following is not among the principles of disease prevention and control:
(A) Maintaining proper weight.
(B) Exercise habit.
(C) Provision of safe food and alcohol. ()
(D) Adequate housing.

3. Under clinical setting, hand washing means:
(A) Removing white powder from hand caused by gloves after attending patient.
(B) Washing hands with soap before eating. ()
(C) Washing hands before attending a patient.
(D) None of the Above.

4. The following are the main types of micro organisms:
(A) Bactrea, Coccus, Bacillus.
(B) Protozoa, Spirochate, Fungi.
(C) Bacteria, Protozoa, Fungi. ()
(D) All of the Above.

5. Nosocomial infection means:
(A) An infection which is a result of treatment in a hospital or a healthcare service unit.
(B) An infection appears within only 6 hours after hospital admission. ()
(C) Is an infection related to patient's original condition before treatment.
(D) Means medical acquired infection.

6. The following is a set of hazardous materials:
(A) Broken floor, broken glass, and broken window. ()
(B) Chemicals, toxic materials, and hydrochloric acid.
(C) Methane, propane, and hexane.
(D) None of the Above.

7. One of the levels of disease prevention and control is:
(A) Screening.
(B) Abstaining. ()
(C) Avoiding group behaviour.
(D) Prevention after biological onset.

8. Some of the risk factors associated with nosocomial infection include:
 (A) Advanced age, prematurity, infant.
 (B) Invasive devices, patient's treatment, pregnant woman,
 (C) Immunodeficiency, advanced age, disability. ()
 (D) None of the above.
9. The components for the chain of infection process are as follows:
 (A) Infectious Agent, Reservoir, Portal of Exit, Portal of Entry and Susceptible Host.
 (B) Mode of Transmission, Infectious Agent, Reservoir, Portal of Exit, Portal of Entry and Susceptible Host.
 (C) Disease Transmission, Infectious Agent, Reservoir, Portal of Exit, Portal of Entry and Susceptible Host. ()
 (D) Body Orifices, Mode of Transmission, Infectious Agent, Reservoir, Portal of Exit, and Portal of Entry.
10. One of the purposes of having standard precautions is:
 (A) To make sure that developing countries follow precautions made by developed countries.
 (B) To ensure quality of health. ()
 (C) To advise on best ways of controlling and preventing diseases.
 (D) None of the Above.

Section B (20 Marks)

Answer ALL questions from this Section.

11. Define the term "standard precaution".
12. List two (2) importance of microbiology.
13. Enumerate two (2) characteristics of protozoa.
14. List two (2) sources of infection.
15. Mention any two (2) importance of hand washing under clinical setting.
16. Name any two (2) modes of disease transmission.
17. In brief, explain any two (2) principles of disposing hazardous materials at working area.
18. Identify any two (2) non-hazardous materials in clinical setting.
19. List any two (2) types of micro organisms.
20. Differentiate between bacillus and spirochate.

SECTION C (25 Marks)

Answer ALL questions from this Section.

21. With typical examples, explain five (5) functions of micro organisms.
22. With the aid of diagrams, distinguish between bacteria and fungi.
23. "A patient's treatment can predispose to nosocomial infection" Discuss.
24. Explain the circular way mode of disease transmission.
25. Describe any five (5) principles of aseptic technique in working area.