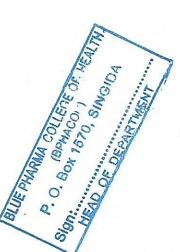
THE UNITED REPUBLIC OF TANZANIA MINISTRY OF HEALTH, COMMUNITY DEVELOPMENT, GENDER, ELDERLY AND CHILDREN PHARMACY COUNCIL







CURRICULUM FOR

ORDINARY DIPLOMA

(NTA LEVEL 6)

IN

PHARMACEUTICAL SCIENCES

Approved by the Council on Valid for five (5) years until Approval Reference 29th May, 2015 28th May, 2020 HASP 08.6/116

Pharmacy Council of Tanzania, P. O. Box 31818, DAR ES SALAAM. National Council for Technical Education, P. O. Box 7109,

DAR-ES-SALAAM.



FOREWORD

One of the statutory functions of the Council as stipulated in Section 5 (10 (e) of the National Council for Technical Education (NACTE) Act (No. 9 of 1997) is to "establish and make awards in technical education and training which are consistent in standard and comparable to related awards in Tanzania and internationally".

The Council has defined and established a range of National Technical Awards (NTA) to be conferred on graduates of technical education and training institutions upon successful completion of their respective studies in various technical fields. The NTA are competence/outcomes based defined according to specific levels of achievement and designed to testify that the holder of the award possesses the requisite competences necessary to apply competently in the relevant occupational sector. Competence in this case refers to the ability to successfully carry out some occupational activity and it is described in terms of skills, knowledge and understanding.

The NTA framework is intended to provide clear and accurate information about the purposes and outcomes of technical education and training, in a form that will be useful to stakeholders. Each technical education and training qualification/award is pegged to a level in the qualifications framework and has a competence descriptor.

The Council has in place procedures which guide technical institutions, authorities or other interested parties to develop curricula. The procedures for curriculum development, review and validation requires an institution wishing to develop a curriculum to carry out Situational Analysis, set or adopt standards and use the same to structure the curriculum. After development of a curriculum, the institution is required to consult its stakeholders to ascertain both the information gathered through situational analysis and the curriculum. A complete submission for validation ought to include the Curriculum Information Report, Situational Analysis Report and Opinion of Stakeholders. This curriculum is validated by the Council because the institution fulfilled all the NACTE requirements for curriculum development, validation and approval.

After this approval, the institution is allowed to make small corrections, if any, during implementation. However, major changes ought to be made during review, which should take place within five years. The institution is also required, before implementing the curriculum, to facilitate the orientation of all teaching staff on CBET curriculum delivery to and ensure adherence to assessment guidelines throughout the training process.

As indicated on the cover page, this curriculum is valid for five years and it should not be used after the indicated validity date.

Dr. A.B. Rutayuga

Ag. EXECUTIVE SECRETARY

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LIST OF ABBREVIATIONS

SLF = Saint Luke Foundation

NTA = National Technical Award

NACTE = National Council for Technical Education

MUHAS = Muhimbili University of Health and Allied Science

RuCU = Ruaha Catholic University

CUHAS = Catholic University of Health and Allied Science

MoHSW = Ministry of Health and Social Welfare

GIZ = Deutsche Gesellschaft Für Internationale Zusammenarbeit

PHSDP = Primary Health Services Development Programme

PHC = Primary Health Care

MDGs = Millennium Development Goals

NSEGPE = National Strategy for Economic Growth and Poverty Elimination

GPA = Grade Point Average

TMTB = Tanganyika Medical Training Board

CA = Continuous Assessment

GMP = Good Manufacturing Practice

WHO = World Health Organization

CTC = Care and Testing Clinic

COSHH = Control of Substances Hazardous to Health

BRELA = Business Registration and Licencing Agency

SoP = Standard Operating Procedure

ADR = Adverse Drugs Reaction

MKUKUTA = Mpango wa Kukuza na Kuondoa Umasikini Tanzania

ADDO = Accredited Dispensing Drugs Outlets

HIV/AIDS = Human Immunovirus/Acquired Immunodeficiency Syndrome

ACKNOWLEDGEMENTS

The review and harmonization of a competence-based curriculum for pharmaceutical sciences has been accomplished through involvement of different stakeholders.

Special thanks go to the Pharmacy Council for spearheading the review and harmonization of the pharmacy training curricula after noticing that training institutions in Tanzania were using different curricula.

I would also like to extend my gratitude to St. Luke Foundation (SLF)/Kilimanjaro School of Pharmacy - Moshi for their tireless effort to mobilize funds from development partners.

Likewise, I am very grateful to Deutsche Gesellschaft Für Internationale Zusammenarbeit (GIZ), Merck Kgaa, Boehringer Ingelheim Gmbh and Bayer Pharma Ag and action medoer e.V for the financial and technical support.

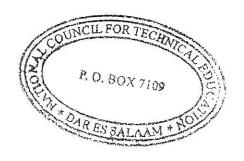
Special thanks to Institutions conducting pharmacy training for their willingness to harmonize their curricula into standard national curriculum for pharmacy NTA 4 to 6.

Likewise I do recognise great ideas and contributions by experts from Kilimanjaro School of Pharmacy, School of Pharmaceutical Sciences – MUHAS, School of Pharmaceutical Technicians – CUHAS, School of Pharmacy – RuCU, St. Peters College of Health Sciences.

I would like to acknowledge the facilitation and commitment by Members of Secretariat from the National Council for Technical Education (NACTE) for their determined support to guide us in the improvement of this curriculum.

The list of those who contributed to this great job is too long to be registered here. The Human Resources Development Directorate and the MoHSW as a whole therefore wishes to take this opportunity to thank all those who actively took part in the curriculum development for the betterment of pharmaceutical training which will impact on health services provision in Tanzania.

Dr. Bumi L.A. Mwamasage
Assistant Director – Allied Health Training



FOREWORD

The Ministry of Health and Social Welfare (MoHSW) has committed itself to provide comprehensive access to quality health services for all Tanzanians in line with the National Development Vision and National Health Policy goals.

In order to attain these goals, the MoHSW has initiated Primary Health Services Development Programme (PHSDP). Among the strategies laid down in this programme is the human resource development to meet the human resource demand for health and a balanced skill mix.

This review and harmonization of the present pharmaceutical sciences curricula for certificate and diploma levels is in line with the policy measures currently being advocated by the MoHSW. In addition, the review of the previous curricula was intended to meet NACTE requirements for National Technical Awards (NTA) implementation, which require a modular curriculum pegged to NTA Levels as well as to match with the changing nature of health services as a bridge to responsive health care delivery.

It is the MoHSW's hope that this curriculum will enable pharmaceutical personnel to acquire necessary competencies in provision of quality pharmaceutical services to the community. It is also anticipated that institutions and stakeholders will find it useful in their academic undertakings.

Dr. Otilia T. Gowelle
Director, Human Resource and Development

EXECUTIVE SUMMARY

Adoption and implementation of the National Technical Awards (NTA) system is a mandatory requirement for technical training programmes to be accredited by the National Council for Technical Education (NACTE).

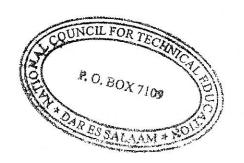
The Technician Certificate course in Pharmaceutical Sciences is a two semester programme, which has been developed to suit the needs of the health sector, the labour market demands and professional needs that exist in our country. It is one of the initiatives by the Government to modernise qualifications within the health sector.

Development of this programme is aimed at rewarding individual achievement in learning and competence gained in a variety of different ways and contexts. The introduction of this programme is geared towards increasing productivity in Pharmaceutical training institutions, providing a climbing ladder for higher learning skills opportunities and competences, and achieving more responsive education and training system, aligned with health sector employment needs.

The philosophy of developing Pharmaceutical Sciences programme at NTA Level 6 is to provide for a fairly well developed career path in pharmaceutical sciences education and competence acquisition. It opens the possibility for moving around and within the NTA qualification framework as established by NACTE and allows graduates to receive appropriate recognition.

This level is comprised of 12 Modules spread over two semesters. Each semester has 20 weeks which include theory and practical training.

Students will be required to work in dispensing, store and compounding areas under supervision as an important learning method and gaining hands on experience in the provision of pharmaceutical services as well as patient/client management and care. They will prepare reports using practical/skill books noting clearly what they will have learnt in their practice.



PART I: INTRODUCTION

1.0 Background Information

The development of human resource required in various health disciplines is very important for sustainable health care services delivery and national development. Currently, with the ongoing globalisation and increased competitiveness, it is important for MoHSW to use competent professionals to spearhead increased productivity in the health sector.

The National Bureau of Statistics estimated that there were 241 hospitals, 742 health centres and 5,680 dispensaries in the country (Tanzania in Figures 2012). Despite the existing network of primary health facilities, accessibility to health care services is still inadequate due to many reasons. In some areas the accessibility to health facilities is more than 10km whereas the Government intends to improve accessibility to be less than 5 kilometres to heath facilities. On the other hand, the availability of quality health care is inequitable, due to the fact that trained health personnel especially pharmaceutical personnel are inequitably deployed and it is estimated that only 35% of the existing primary health facilities are manned by skilled workforce of whom the majority are without appropriate pharmaceutical training.

As a result this contributes to high loss of medicines and excruciating mortalities to children and women in reproductive age groups who fail to access appropriate care at the time of need. The Maternal and Child Mortality rates are quite high standing at 578 per 100,000 live births and 68 per 1,000 live births respectively (DHS 2005).

On the other hand, the country is still grappling with a high burden of diseases from malaria, HIV/AIDS, TB and Leprosy, malnutrition and micronutrient deficiencies, child illnesses, accidents and non-communicable diseases are also on the increase.

It is within this context that MoHSW is changing the current curricula from the conventional knowledge-based to outcomes / competence based curricula with a flexible mode of delivery and assessment. It is expected that with these curricula, the country can achieve the objective of having semi qualified pharmaceutical personnel, who could work effectively and assist to meet the demands of the health sector. It is also expected that training institutions will ensure that students are equipped with necessary competences, which will enable them play roles requiring basic skills, knowledge and understanding and in which they take responsibility for their professional role.

The aim of the training programme is to supply the country with adequately trained technicians in pharmacy who will work in various health facilities and participate in the provision of basic pharmaceutical services.



1.1 Objectives of Developing Competence Based Curriculum for Pharmaceutical Sciences Training

The main objective of developing competence-based curriculum for pharmaceutical training is to produce pharmaceutical personnel at technician level who are competent to enable them work flexibly in different work places. The specific objectives include among other things to:

- (i) Help trainees acquire the competences desired with the aim of enabling them to work effectively;
- (ii) Facilitate training in consideration of individual learning differences by using alternatives paths and flexible scheduling of learning activities; and also help learners to be more responsible for their own learning;
- (iii) Implement the training programme using a wide range provisions, which satisfy the educational criteria for competent professional training;
- (iv) Make training needs clear and specific, resulting in more efficient utilisation of training resources; and
- (v) Facilitate more efficient educational exchange between trainers and trainers

2.0 PROGRAMME RATIONALE AND PHILOSOPHY

2.1 Programme Rationale

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The main objective of the National Health Policy (2003) is to improve the health and well-being of all Tanzanians, with a focus on those most at risk, and to encourage the health system to be more responsive to the needs of the people. This objective cannot be achieved without having appropriately and adequately trained pharmaceutical personnel and other health workers. According to WHO World Health Report 2006, health workers are crucially important for producing good health through the and perform key roles in all societies.

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Tanzania Vision 2025, National Strategy for Economic Growth and Poverty Elimination (NSEGPE), Health for All, Primary Health Care (PHC) and Millennium Development Goals (MDGs) are not achievable without an appropriately prepared and deployed health workforce; and the training of health workers is crucial for achieving equity-oriented national health goals.

Pharmacy, like many other professions, is affected by the rapid changes currently taking place in the society, science and technology. It is also shaped by changing demography, epidemiology, health systems and consumer preference in the labour market. Therefore, strategic planning and actions should focus on investing in people, especially pre-service education to promote quality care and equity by correcting skill imbalances and inservice training to enhance the performance of the health system.

In this regard pharmaceutical sciences curricula must be responsive to changes in pharmacy practice, the society, the economy and changes in the nature of teaching and learning. It is important to provide an excellent of the control of teaching and

responsive to the changing demands of life and work in the 21st century. It also been observed that pharmacy training has been taking long time unnecessarily due to duplication of contents in career path development.

This programme has been developed in line with the above considerations, which provides for a creation of a life-long learning culture, modularisation, credit accumulation, student choice and scalability, leading to acquisition of more knowledge, skills and wider understanding in pharmaceutical sciences and health care practice.

The rationale for this programme is therefore to achieve more responsive pharmacy education and training system, aligned with health sector employment needs.

2.2 Programme Philosophy

Philosophy describes set of values and beliefs that guide all learning experiences of the curriculum. It is the basic foundation that directs all further planning, organisation, implementation and evaluation of the curriculum. This programme is geared towards producing innovative, creative and flexible pharmaceutical personnel who will cope with the dynamic changes of the profession, technology and health needs.

Pharmacy is an art and science of drugs discovery, manufacturing, distribution and use, therefore:

- (i) The accessibility to the highest attainable standards of pharmaceutical services is a fundamental right of the human being irrespective of gender, age, race, religion, socio-cultural differences, political affiliation, economic or social background;
- (ii) The practice of pharmacy is humanitarian in nature and requires knowledge, skills and attitudes in respect of compassion, respect and empathy, ethical and legal consideration in the provision of care;
- (iii) Environment influences health of individuals, families and community at large. Therefore, a pharmaceutical personnel must acknowledge the different interaction patterns in the environment and the impact in interaction to health and illness;
- (iv) Education is a continuous process that embraces new technology and community demands and therefore a pharmaceutical personnel shall keep abreast with current health development to render quality cost— effective services;
- (v) The learner is a unique individual with past experiences and needs, which should be respected. She/he has the responsibility for her/his own learning and self-development through active participation; and
- (vi) Collaboration is necessary for effective actions to occur. Training institutions shall maintain teamwork spirit at all levels of training environment.

It is therefore expected that since the programme adopts a modular system and will operate under semester structure, the graduates from this level will have aspirations to pursue higher qualifications in pharmacy profession. This will facilitate a large degree

3.0 VISION AND MISSION OF THE TRAINING PROGRAMME

3.1 Vision

To have competent pharmaceutical personnel who will provide pharmaceutical services effectively in different health care settings and cope with existing and emerging health issues.

3.2 Mission

To establish conducive and sustainable training environment that will allow students and graduates to perform competently at their relevant levels and aspire for attainment of higher knowledge, skills and attitudes in promoting health, preventing diseases and caring for clients in all settings

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4.0 AIM AND OBJECTIVES OF THE PROGRAMME

4.1 Aim of the Programme

The programme aim to achieve the following goals:

- (i) To form a flexible course that is responsive to dynamic and rapidly changing world of work and the society
 (ii) To provide pharmacoutical translations.
- (ii) To provide pharmaceutical knowledge, skills and behaviours vital to learners, employers and the community;
- (iii) To entice self-realisation and team work skills that enable graduates to perform efficiently and aspire for higher level training;
- (iv) To build capacity to participate in the implementation of National Health Policy and its accompanying operational guidelines; and
- (v) To propagate and promote moral, legal and ethical conduct among pharmaceutical personnel and other health workers within the pharmacy profession and national legal framework.

4.2 Objectives

The objectives of this programme are to:

- (i) Form a career advancement in pharmacy practice and an operational role for pharmaceutical management in health care service delivery;
- (ii) Impart appropriate knowledge, skills and attitudes relevant to pharmacy practice in relation to preventive and curative health care services in the
- (iii) Steer creativity and innovativeness in response to challenges inherent in pharmacy practice and health care delivery;
- (iv) Inculcate a culture of team work, build critical thinking and problem solving skills in pharmacy and health care practice
- (v) Inculcate sense of citizenship, professionalism, accountability and

- (vi) Stimulate life-long learning behaviour for pharmaceutical personnel and advancement of pharmacy profession; and
- (vii) Provide an international outlook of the learning content and context so as to widen learners' advantage into regional and international labour market.

5.0 ADMISSION REQUIREMENTS

5.1 Direct Entry

The entry qualification for this programme shall be holders of Certificate of Secondary Education (CSEE) with four passes including "C" pass in Chemistry and Biology; and "D" pass in Physics/Engineering Sciences and any other subject.

5.2 Equivalent qualifications

Pharmaceutical assistant (holder of NTA L5 certificate) with at least two years of working experience who has passed selection examination recognized by NACTE

5.3 Mode of Application

Applicants should apply through the central admission system of the National Council for Technical Education at the www.nacte.go.tz.

5.4 Selection Procedure

Selection will be done by NACTE and successfully applicants shall obtain joining instructions from respective training institutions.

6.0 PROGRAMME DURATION

The NTA Level 6 programme has a total of 40 weeks of study divided in two semesters. Twenty four (24) weeks are set aside for theoretical training and sixteen (16) weeks are designated for pharmacy practice.

This level is meant to provide basic pharmaceutical sciences knowledge, skills and appropriate attitudes to students. All modules are fundamental and are intended to build students' knowledge and skills necessary for acquiring competences appropriate for modern practice of pharmacy; instil motivation for life-long learning and good foundation for progress studies in pharmacy profession.

7.0 ASSESSMENT

Assessment is an integral part of the learning process and must support and complement the learning strategies in order to achieve the required outcomes. Assessment in particular, must reflect the required progression and be sensitive to the range of key skills developed.

7.1 Principles of Assessment

(i) Assessment will reflect aims and objectives of the overall scheme and learning outcomes of the module.



- Assessment will be varied to facilitate motivation and recognition of the need (iii) to adopt approaches which enable students to demonstrate and fulfil learning objectives. (iv)
- Assessment will reflect progression through studying year, with increasingly more complex methods being associated with higher order skills.

7.2 Assessment Methods

The following assessment methods will be used:

7.2.1 Assignments

The object of assignments is to reinforce the learning process by involving the students in finding solution to a given question or problem which require decision- making. They include tasks given to students apart from written tests and examinations or projects, so as to enhance self- development.

Individual or group assignments will be in form of written work and/or practical exercises. For each module appropriate assessment methods and instruments will be indicated. Facilitators will administer not less than two assignments for a given module in a

7.2.2 Competence Tests

The intention of competence tests is to measure the practical capability of learners through actual doing of a particular task or skill. This will be conducted in actual or

7.2.3 Class Room Knowledge Tests

The intention of classroom tests is to measure theoretical and practical performance of students through evaluation of written work and actual doing respectively.

There will be a minimum of two written classroom tests in each semester under supervision of qualified tutor(s). Duration of each test will be not less than two (2) hours.

7.2.4 End of Module Examination

This examination shall be conducted for duration of three (3) hours under supervision of qualified tutor (s).

7.3 Management of Assessment

The mode of conduct and administration of assessment shall be that approved by

8.0 MINIMUM CREDIT REQUIREMENT

This Programme has 12 modules, which are assigned 120 credits.

9.0 MODULE CODING

The system of coding has adopted a combination of letters and numbers, which have a specific meaning. For example the following modules offered in the first semester by the department of Pharmaceutical Sciences may be coded respectively as PST 06103 where:

PST 06103 refers to Pharmaceutical Production module.

- PS Represents the first two letters of the department "Pharmaceutical Sciences".
- T Represent the qualification at the respective level "Technician".
- 06 Represents the respective NTA Level.
- 1 Indicates the semester in which the module is conducted
- Represents the serial number to which a particular module is assigned in the department (in this case 3rd Module).

10.0 GRADING SYSTEM

Marks will be awarded out of 100 per cent. The marks so obtained from different assessment components will be graded as follows:

S/N	SCORE RANGE	GRADE	DEFINITION
1.	75 – 100	А	Excellent
2.	70 - 74	B+	Very Good
3.	65 – 69	В	Good
4.	50 - 64	С	Average .
5.	40 – 49	D	Poor
6.	0 – 39	F	Failure
7.	-	1	Incomplete
7.	0	Q	Disqualification

11.0 CLASSIFICATION OF AWARD

Grades for the different score ranges are assigned points as follows

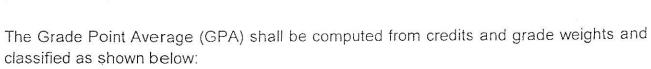
A – 5

B+ - 4 B - 3

C – 2

D – 1

F - 0



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CLASS OF AWARD	CUMMULATIVE GPA	
First class	4.4 – 5.0	
Upper second class	3.5 – 4.3	
Lower second class	2.7 – 3.4	
Pass	2.0 – 2.6	

An award shall be given to a student who satisfies the following conditions:

- a) She/he must have successfully completed all modules for which the award is to be made; and
- b) She/he has achieved the minimum cumulative Grade Point Average (GPA) equivalent to pass.

11.1 Computation of Cumulative GPA

(i) A cumulative grade point average (Cum GPA) for each candidate shall be computed by dividing the total number of grade points earned for all modules by the total number for the award examined.

i.e. cummulative
$$GPA = \frac{SUM OF(PxN)}{SUM OF N}$$

Where P represents a grade point assigned to a letter grade scored by the students in a module and N represents the number of Credits associated with the module.

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(ii) The Grade Point Average (GPA) shall be computed and truncated so that it won't provide a range of decimal point.

12.0 EXAMINATIONS REGULATIONS

The General Ministry of Health and Social Welfare (MoHSW) Examination Regulations for Training Institutions on registration for examinations, board of examiners, preservation of scripts, procedures for appeals, examination offences and penalties, examination fees and certification and awards shall remain as stipulated in the MoHSW Examination Regulations.

12.1 Eligibility for Examinations

- (i) A student must have been present for at least 90% of the classes to be allowed to sit for end of semester examinations.
- (ii) A student who fails to meet a minimum of 90% attendance in a particular semester with compelling reasons as determined by the participatory organs shall be allowed to repeat the semester otherwise he/she shall be discontinued from studies.
- (iii) No student shall be allowed to sit for the end of semester examinations unless his/her average continuous assessment in each module is 50% or higher.
- (iv) A student who fails to complete assignment(s) or research work in the scheduled time shall not be allowed to sit for the end of semester examinations.
- (v) Where a student who fails to fulfil the eligibility requirements stipulated, sits for the end of semester examinations, his/her examination results shall be null and void.

12.2 Conduct of Examinations

End of semester examinations shall be conducted under the control and supervision of MoHSW or any other body as the MoHSW shall appoint.

12.3 Guidance for Invigilators

12.3.1 Before the examination:

- (i) Invigilators shall personally collect from the head of the department sealed envelopes containing examination papers and any other materials prescribed in the rubrics at least thirty minutes before the examination
- (ii) Invigilators shall be present in the examination room at least twenty minutes before commencement of the examination.
- (iii) Invigilators shall admit candidates into the examination room at least twenty minutes before commencement of the examination and ensure that candidates are seated in their right places.

12.3.2 During the examination:

- (i) No candidate shall be allowed out of the examination room during the first thirty minutes of the examination
- (ii) No candidate shall be allowed to leave the examination room during the last thirty minutes.
- (iii) Invigilator shall allow five minutes for the candidates to read the examination paper and ensure they have the right paper with correct number of pages.

12.3.3 At the end of examination:

- (i) Invigilator shall tell the candidates to stop attempting the examination and assemble their work/scripts
- (ii) Candidates shall hand in their scripts to the invigilator and sign an examination attendance form
- (iii) No candidate shall be allowed to leave the examination room before their scripts are collected
- (iv) No candidate shall be allowed to leave with any examination materials found in the examination room.
- (v) Invigilators shall enter the total of scripts collected and sign in the examination attendance form (Appendix 1) and submit the scripts and the examination attendance form to the head of the department.

12.4 Absence from Examinations

(i) A student who fails to appear for a scheduled examination with valid reason (s) shall be allowed to sit for that particular examination when next scheduled. The student shall not be allowed to proceed to the next semester if the missed examination(s) is for a pre-requisite module.

When a candidate misses an examination without valid reason(s), as determined by participatory organs (i.e. academic committees/boards), the chandidate shall be discontinued from the studies.

*0.80t

12.5 Falling Sick Immediately Before or During Examination

A candidate who falls sick immediately before or during the time of a scheduled examination and is medically unable to proceed (i.e. as certified by a medical officer) shall be allowed to postpone the examination until next scheduled. Any student, who is sick and nevertheless decides to take or proceed with an examination, does so at his/her own risk and must abide by the results of the examination.

12.6 Reporting Late for Examinations

- A candidate, who without valid reason(s), reports late for an examination (i) (more than thirty minutes after commencement of examination) shall not be allowed into the examination room but will be allowed to sit for that particular examination when next scheduled. The candidate shall not be allowed to proceed to the next semester if the missed examination(s) is/are for pre-
- A candidate, who for valid reason, reports late for an examination (more than (ii)thirty minutes after commencement of examination) and pleads in writing to take the examination may, subject to the discretion of the invigilator, be allowed to do the examination within the remaining time at his/her own risk. All cases of late arrivals for examinations shall be reported in writing by the invigilator to head of department.

12.7 Students Progression and Disposal

- The semester shall be the basic academic audit unit. All modules offered (i) during the semester shall be assessed within that semester, at the end of each module external examiners or moderators shall be invited at the end of the semester. A student shall be allowed to proceed to the next semester if he/she passes end of module examinations in all modules prescribed in a
- For every module there shall be at least two continuous assessment (CA) (ii)tests and regular assessment of competencies which shall constitute 60% of summative assessment. The end of module examination shall constitute another 40% of the summative assessment.

12.8 Supplementary Examination

- A candidate who fails one or more modules shall be allowed to sit for (i) supplementary examination if his/her GPA in that semester is not less than
- A candidate who fails one or more modules must sit for supplementary (ii)examinations when scheduled before proceeding to the next semester. The student who passes a supplementary examination will be awarded a maximum of "C" grade regardless of his/her score (equivalent to 50% score). The passing of supplementary examination shall take into account the continuous assessment scores.

12.9 Repeating the Semester

- (i) A candidate who fails to obtain an average of 50% in his/her continuous assessment shall repeat the semester.
- (ii) A candidate who fails supplementary examination(s) shall repeat the semester. A candidate who fails a repeated semester shall be discontinued from studies.
- (iii) A candidate who fails to meet a minimum of 90% attendance in a particular semester with acceptable grounds as determined by the participatory organs shall repeat the semester.

12.10 Discontinuation

- (i) A candidate who fails to meet a minimum of 90% attendance in a particular semester without acceptable grounds shall be discontinued from studies.
- (ii) When a candidate misses examination(s) without valid reason(s) shall be discontinued from the studies.
- (iii) A candidate who obtains a semester GPA of less than 1.8 shall be discontinued from studies.
- (iv) A candidate who does not appear for supplementary examination(s) without compelling reason(s) approved by participatory organs shall be discontinued from studies.
- (v) A candidate found guilty of an examination irregularity shall be discontinued from studies.
- (vi) A candidate who has been disqualified from an examination following his/her walking out of the examination room in protest shall be discontinued from studies.

12.11 Examination Irregularities or Academic Dishonesty

Examination irregularities shall include but not limited to:

(i) A candidate found with unauthorized materials/information at any time during the examination process. Such unauthorized materials will include written pieces of papers, mobile/cellular phones or any other unauthorized materials.

A candidate attempting to copy from another candidate's work or permitting another candidate to do so.

A candidate communicating with another candidate by giving or obtaining unauthorized assistance or attempting to do so.

A candidate removing question papers, scripts or any other examination materials found in the examination room.

- v) A candidate starting to attempt examination before being authorized to do so.
- (vi) A candidate continuing to attempt the examination after being ordered to stop.
- (vii) A candidate refusing to obey a lawful order given by an invigilator.
- (viii) A candidate destroying or attempting to destroy evidence of suspected irregularities.
- (ix) A candidate found to have committed plagiarism.
- (x) A candidate behaving in such a manner as to disrupt the examination



12.12 Procedure for Dealing with Examination Irregularities

In case of alleged examinations irregularity:

- (i) The candidate shall be stopped by the invigilator from continuing with the examination and be required to sign an examination irregularity report (Appendix 2) and the materials pertinent to the incidence to confirm that they are his/hers. However, the candidate shall be allowed to sit for the remaining examinations.
- (ii) The invigilator shall counter sign and submit to the head of department the examination irregularity report together with the candidate's examination script and all pertinent materials immediately after the end of examination for further transmission through appropriate participatory organs for action as stipulated in the examination offences and penalties of the MoHSW Examination Regulations.

12.13 Instruction to Students

- (i) Candidates shall be admitted into examination room twenty minutes before the examination starts.
- (ii) No candidate shall be permitted to enter the examination room 30 minutes
 (iii) Candidates without examination.
- (iii) Candidates without examination numbers and identity cards shall not be allowed into the examination room.
- (iv) Candidates are responsible for consulting examinations time table for any changes.
- (v) Candidates are not allowed to enter examination room with books, bags,
 (vi) When candidates are allowed to be being or other such items.
- (vi) When candidates are allowed to bring specified items in the examination room, no borrowing from one another will be allowed during examination time, and the items allowed will be liable to inspection by the invigilator.
 (vii) Candidates shall follow the examination.
- (vii) Candidates shall follow the examination instructions.
- (viii) Candidates shall write only their examination numbers on every page used.

 (ix) No candidate shall be allowed to be allow
- (ix) No candidate shall be allowed to leave the examination room during the last thirty minutes.
- (x) At all times during the examination the candidate's examination number/identity card shall be conspicuously placed on the desk in front of the student by the student.
- (xi) Smoking, beverages and food shall not be allowed into the examination room. Any special needs for eating, drinking or medication shall be reported to the invigilator before start of the examination.
- (xii) At the end of examination, and on the instruction of the invigilator, candidates shall be required to stop writing, and organize their work. The candidate shall personally hand in his/her scripts to the invigilator and sign to that effect.
- (xiii) Candidates are allowed to bring pens, pencils and other materials explicitly prescribed by the department into the examination room.

- (xiv) For a candidate wishing to answer a call of nature may, with permission of invigilator and under escort, leave the examination room for a period of time not exceeding five (5) minutes. Only one candidate at a time will be allowed to leave the examination room and will be monitored at all times.
- (xv) A candidate who walks out of the examination in protest shall be disqualified from that particular examination.
- (xvi) Candidates must understand that the ultimate responsibility for taking supplementary examination(s) at the correct time rests on him/her.
- (xvii) Invigilator(s) shall have the power to:
 - Specify and change the sitting arrangement in the examination room Inspect candidates to make sure they are not in possession of unauthorized materials. Inspection of candidates shall observe gender lissues.

Confiscate any unauthorized material and to remove from the examination room any candidate found with such material.

Remove from the examination room any candidate who disrupts the examination process

12.14 Release and publication of Examination Results

The head of department may publish the examinations results provisionally subject to approval by the Tanganyika Medical and Training Board (TMTB) as recommended by the participatory organs.

12.15 Examination Components Contribution

Due to the nature of pharmacy training, this programme is constituted by theory modules and practical modules. For each module there shall be at least two continuous assessment (CA) tests and regular assessment of competencies which shall constitute 60% of summative assessment. The end of module examination shall constitute another 40% of the summative assessment.

Summary of contribution of components of assessment to final mark

Module	Continuous		End of	Semester	Grand Total (%)
	Assessment	Tests	Examina	ation (%)	
	(%)				
Theory	60		40		100
Modules					
Practical	60		40		100
Modules					

12.16 Examination Appeals

The appeals of candidates, who have not satisfied the examiners, should follow the process described in the training regulation of the Ministry of Health and Social Welfare.

13.0 TEACHING PERSONNEL

Tutors for modules in this programme should have at least an Ordinary Diploma in relevant field and/or evidence of competency in respective module.

14.0 TRAINING REGULATIONS

14.1 Reporting to the Training Institution

Students selected for admission should report to the training institution not more than 15 days after commencement of the academic year.

14.2 Programme Completion Requirements

For a candidate to qualify for award of the qualification of this NTA Level must have attended classes by not less than 90% of the total programme sessions, submitted required assignments and reports and passed all modules and acquired a cumulative GPA of not less than 2.0 (i.e. equivalent to a "C" grade).

14.3 Period of Absence

A student who fails to meet a minimum of 90% attendance in a particular semester with compelling reasons as determined by the participatory organs shall be allowed to repeat the semester otherwise he/she shall be discontinued from studies.

14.4 Conduct and Behaviour

Students admitted into pharmacy training should portray acceptable character and behaviour at all times.

15.0 PROGRAMME MODULES

15.1 Semester | Modules

Code	Module Title	Sc	Credits /			
DOTES		Theory	Tutorials	Practical	Assignment	Semester
PST06101	Leadership and Management	4	1	-	1	12
PST06102	Counselling and Guidance Skills	2	1	~	1	8
PST06103	Pharmaceutical Production	5	1	4	1	20
PST06104	Health and Medicines Policy	2	-	_	1	7
PST06105	Health Financing	4	1	-	1	12
PST06106	Basic Pharmacotherapy					6
PST06107	Basic Veterinary					
	Pharmacology					6
	SUB-TOTAL	17	4	4	5	59



15.2 Semester II Modules

Code	Module Title	Scheme	of Study (F	lours per we	ek)	Credits /
0000		Theory	Tutorials	Practical	Assignment	Semester
PST0620	Pharmaceutical Public Health	2	1	-	1	8
PST0620	Entrepreneurship	4	1	-	1	12
9 PST0621	Operational Research	8	1	-	5	24
0 PST0621	Monitoring and Evaluation of Medicines	4 .	1	-	1	12
	Use TOTAL	18	4	-	8	56

Code	Module	Scheme of Practice (Hrs per week over six weeks)						
0000	Title	Dispensing	Drugs Store	Industria I	Non Sterile Preparations			
PST062 12	Pharmacy Practice	120	120	0	0	5		

15.3 Summary of Modules

CODE	MODULE TITLES	TOTAL CREDITS	SEMESTERI	SEMESTER II
PST06101	Leadership and Management	12	1	
PST06102	Counselling and Guidance Skills	8	7	
PST06103	Pharmaceutical Production	20	V	
PST06104	Health and Medicines Policy	7	1	
PST06105	Health Financing	12	1	
PST06106	Basic Pharmacotherapy	6	1	
PST06107	Basic Veterinary Pharmacology	6	V JHCL FO	Themarcac
PST06208	Pharmaceutical Public Health	8	(2) v.0	80×7104
PST06209	Entrepreneurship	12	Ac.	V
PST06210	Operational Research	24	ALL WILLIAM	No.
PST06211	Monitoring and Evaluation of Medicines Use	12		1
PST06212	Pharmacy Practice	5		1
	TOTAL CREDITS	120		

PART II - CURRICULUM DETAILS

Qualification:	Ordinary Dialogo in Di
Luamouton.	Ordinary Diploma in Pharmaceutical Sciences
Purpose(s) of	This qualification is intended for a person who will apply
Qualification:	pharmaceutical sciences, ethics, principles and evidences in
	health promotion through dispensing, compounding,
	manufacturing and managing medicines supply chain in the
	healthcare delivery system. May also be engaged in relevant
	pharmaceutical activities such as research, academic, quality
ie.	control and profession regulatory issues.
NTA Level:	
	6
Competence	Apply skills and knowledge in a broad range of work activities
Descriptors:	most of which are non-routine (supervisory)
	(supervisory)
Credits at this	120
Level:	CII FO
Cumulative Credits	O COUNCIL FOR TECTA
from Lowest Level:	
	E.O. BOX 7109
Date the	Fabruary 2015
Qualification	February, 2015
Standard Last	
Developed:	

8.0 Principal Learning Outcomes

S/N	PRINCIPAL OUT	COME	CREDITS	ASSESSMENT CRITERIA
1	Establish good	work-relationship other healthcare clients in the	15	(i) Channels of communication well described (ii) Information sharing capacity demonstrated (iii) Methods of pharmacy related health education and promotion are described (iv) Techniques for establishing good working relationship is described (v) Counselling and guidance approaches explained
2	Apply Good	Manufacturing	30	(i) Principles of

	Practice (GMP) and techniques in a large scale manufacturing of pharmaceutical products.		compounding/manufactur ing of solid dosage forms are described. (ii) Functionality and integrity of GMP and techniques in large scale manufacturing and storage of pharmaceutical products are clearly described (iii) Measures for creation and maintenance of safe working environment and conditions correctly described (iv) Components of Quality improvement reports correctly described (v) Routine/preventive equipment maintenance schedules correctly developed.
3	Apply principles of management, leadership, entrepreneurship and health financing systems in the provision of pharmaceutical services in line with public policies, ethical and legal framework P.O. BOX 7109 P.O. BOX 7109	30	 (i) Principles and importance of entrepreneurship in pharmaceutical services well described. (ii) Procedures for establishing pharmaceutical business venture clearly described (iii) Steps of developing simple business plan explained. (iv) Professional ethics and conducts in relation to pharmaceutical business are appropriately explained. (v) Principles of marketing and sales are described (vi) Management functions correctly described (vii) Leadership skills correctly demonstrated (viii) Health financing

		T	<u></u>
1			are differentiated and described
4	Apply principles of operational research in improving provision of pharmaceutical services.	25	 (i) Fundamentals of biostatistics described (ii) Steps of conducting operational research described (iii) Research methods and tools correctly described
5	Apply basic principles of pharmacotherapy and pharmacovigillance in provision of medical and veterinary pharmaceutical services	20	(i) Principles and concept of pharmacotherapy correctly explained (ii) Pharmacotherapeutic management of common diseases applied (iii) Principles and concept of veterinary medicine described (iv) Pharmacological management of common veterinary diseases
	P.O. BOX 7109		correctly described (v) Concept and principles of monitoring and evaluation described (vi) Components of WHO operational package for assessing monitoring and evaluation of country pharmaceutical situations described

9.0 Principal and Enabling Outcomes

S/No.	Principal Outcome	Enabling Outcome
1	Establish good work-relationship with colleagues, other healthcare providers and clients in the provision of pharmaceutical services.	for promoting rational use of medicines
		1.3 Utilize counselling and guidance techniques in promoting rational use of medicines.

2	Apply Cood Manufacturing Dearting	2 1 Deparibe assessment and
	Apply Good Manufacturing Practice	
	(GMP) and techniques in	
	manufacturing of pharmaceutical	
	products.	2.2 Describe requirements for
		establishing manufacturing of
		pharmaceutical products
		2.3 Employ quality assurance and
		control techniques in
		production of pharmaceutical
		products.
3	Apply principles of management,	3.1 Apply managerial and
	leadership, entrepreneurship and	leadership skills in delivery of
	health financing systems in the	pharmaceutical services.
	provision of pharmaceutical	3.2 Describe global initiatives and
	services.	national policies related to the
	GOLVICES.	provision of pharmaceutical
		services
	NCL FOR TECHNO	3.3 Apply entrepreneurial skills in
/	COUNCIDIO	provision of pharmaceutical
		services
{ {₹	(P.O. BOX 7109)(5)	3.4 Describe mechanisms of health
11/2		financing applicable to
	DAR ES SALAAM	provision of health services
	The second secon	3.5 Apply basic principles of
		financial management in
		provision of pharmaceutical
		services
4	Apply principles of operational	
	research in improving provision of	and principles in processing
	pharmaceutical services.	and interpreting pharmaceutical
	*	services data
		4.2 Conduct facility based research
		to support improvement of
		pharmacy practice
	<i>j</i> .	4.3 Analyse public health problems
		related to quality, safety and
		efficacy of medicines
5	Apply basic principles of	5.1 Apply principles of
	pharmacotherapy and	pharmacotherapy in the
	pharmacovigillance in provision of	management of common
	medical and veterinary	human diseases
	pharmaceutical services	5.2 Apply principles of veterinary
		pharmacology in
		pharmaceutical services
		5.3 Monitor utilization of medicines
		in health care delivery system
		III HOURT OUT GOIVERY OFFICIAL

	Enabling Outcome	Sub-Enabling Outcomes
1.1	Build coalitions and networks for	1.1.1 Describe the concept of
	promoting rational use of medicines	participatory planning in
	promoting remains	provision of health care
		services.
		1.1.2 Describe the role of
		pharmaceutical personnel ir
		health care teams.
		1.1.3 Describe networking and
	*	negotiations techniques in
		delivery of health care
		services.
1.2	Develop health promotion	1.2.1 Describe health promotion
	programmes related to provision of	programmes related to
	pharmaceutical services	pharmaceutical care and
	production of the second of th	services.
		1.2.2 Explain concepts and
		principles of pharmaceutica
		public health
		1.2.3 Describe the concept of
		advocacy in relation to
		provision of pharmaceutica
		services.
1.3	Utilize counselling and guidance	1.3.1 Describe counselling and
	techniques in promoting rational use	guidance techniques in
	of medicines.	promoting rational use of
		medicines.
		1.3.2 Describe operating
		mechanisms of Care and
		Treatment Clinics (CTC)
		1.3.3 Describe various methods to
		encourage adherence
		compliance and concordance
		to treatment
2.1	Describe procedures and processes	
	in pharmaceutical production	processes of producing soli
		dosage forms
	And the state of t	2.1.2 Describe quality control and
	UNCLL FOR TECHWIC	accuration production
Si	Sold The second	pharmáceutical production
and a	E 0. 80X 716%	2.1.3 Describe waste management and disposal i
H		and disposal I pharmaceutical production
	PARES SALAAM TO	
	TO DATA	2.1.4 Describe premise an

				procedures in pharmaceutical manufacturing facilities
	2.2	Describe requirements for	2.2.1	Describe policies and
		establishing manufacturing of		legislations governing
		pharmaceutical products		manufacturing of
	- Laurenteen (Contractor) (Contractor)	phamaceutear products		pharmaceuticals
1	NCIL FOR T	ECHNIC	2.2.2	
	O14	A COM	2.2.2	environmental impact
3	P.O. BOX	7100		assessment in establishing
lèl	1,0.202			manufacturing of
ALC:	18 7000	3 8 80		pharmaceuticals
A.S.	DAR ES SA	LAAM LAAM	2.2.3	
			2.2.5	licencing procedures in
				establishing manufacturing of
				pharmaceuticals
	0.0	E. I. III.	2.3.1	Describe the importance of
	2.3	Employ quality assurance and	2.3.1	Standard Operating
	*	control techniques in production of		
	1 11	pharmaceutical products.		A CALLER SERVICE CO. Service A car to Zo
			0.00	pharmaceuticals
			2.3.2	Describe the components of
			0.00	SoP
			2.3.3	Carry out quality tests for
			80 60	raw materials and finished
			0 1 1	pharmaceutical products
	3.1	Apply managerial and leadership	3.1.1	
		skills in delivery of pharmaceutical	0.10	concept and functions
		services.	3.1.2	Describe organization
				behaviour in relation to
			0.1.0	workplace productivity
			3.1.3	Differentiate forms of
				leadership and management
			0.4.4	styles
			3.1.4	Distinguish various structures
,				of organisations
			3.1.5	Describe leadership
				attributes in provision of
				pharmaceutical services
	3.2	Describe global initiatives and	3.2.1	Describe national policies
		national policies related to the		related to provision of health
		provision of pharmaceutical services		care services.
			3.2.2	Describe the primary health
				care concept and principles
			3.2.3	Describe components of the
				National Health Policy

		3.3.2 Distinguish between types of entrepreneurs and their key competencies
	COUNCIL FOR TECHNICAL P.	3.3.3 Explain challenges encountered by entrepreneurs in provision of pharmaceutical services
	P.O. SOX 7109	3.3.4 Describe concept and principles of marketing and sales of pharmaceuticals
 el		3.3.5 Describe procedures and requirements for establishing marketing outlets for medicines and medical supplies
3.4	Describe mechanisms of health financing applicable to provision of health services	3.4.1 Describe basic concept and principles of economics 3.4.2Describe the concept and principles of health economics in delivery of pharmaceutical services. 3.4.3Identify practices in health care delivery affecting the adoption of
		health economics principles
3.5	Apply basic principles of financial management in provision of pharmaceutical services	3.5.1 Describe health financing mechanisms 3.5.2 Describe public financing through Government subvention 3.5.3 Describe health insurance mechanisms
4.1	Use basic statistical concepts and principles in processing and interpreting pharmaceutical services data	4.1.1Describe basic statistical concepts and principles 4.1.2Summarize data using basic statistical principles to support decision making in provision of pharmaceutical services. 4.1.3Establish trends in health care services
4.2	Conduct facility based research to support improvement of pharmacy practice	4.2.1Describe basic concept and principles of research 4.2.2Differentiate between various types of research 4.2.3Describe procedures for conducting operational research
4.3	Analyse public health problems related to quality, safety and efficacy	

	of medicines	4.3.2 Describe the procedures for monitoring and detection of adverse drug reactions (ADRs)
		 4.3.3 Describe methods of controlling substandard and counterfeit medicines 4.3.4 Explain factors contributing to distribution of substandard
5.1	Apply principles of pharmacotherapy in the management of common human diseases	and counterfeit medicines 5.1.1Explain the principles and concept of pharmacotherapy
8	Trainer discuses	5.1.2Apply knowledge of pharmacotherapy in management of common communicable diseases
		5.1.3 Apply knowledge of pharmacotherapy in management of common non communicable diseases
5.2	Apply principles of veterinary pharmacology in pharmaceutical services	5.2.1Describe principles and concept of veterinary medicine 5.2.2Classify veterinary medicines according to pharmacological activities
		5.2.3Apply knowledge of pharmacology in treatment of common veterinary diseases
5.3	Monitor utilization of medicines in health care delivery system	5.3.1 Describe the concept and principles of monitoring and evaluation
		5.3.2 Describe components of WHO operational package for assessing monitoring and evaluation of country
		pharmaceutical situations 5.3.3 Identify common drawbacks in monitoring and evaluation of medicines use
		5.3.4 Describe common indicators in medicines use

11.0 ASSESSMENT CRITERIA AND THEIR BENCHMARKING

11.1 Sub-enabling Outcomes, Related Tasks, Assessment Criteria, Methods and Instruments

Sub-enabling outcomes	Related Tasks	Assessment Criteria	Assessment Methods	Assessment Instruments
1.1.1 Describe the concept of participatory planning in provision of health care services	a) Define participatory planning b) List steps in participatory planning c) Explain the importance of participatory planning in pharmaceutical services	provision of health care services described	Oral questioning Written tests Assignments	
1.1.2 Describe the role of pharmaceutical personnel in health care teams	a) Explain stages of team development b) Explain the role of pharmaceutical personnel in health care team c) Explain the importance of team work in delivery of health care services	Role of pharmaceutical personnel in health care teams described	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment report
1.1.3 Describe networking and negotiation techniques in delivery of health care services	a) Define networking and negotiation b) List networking skills in delivery of health care services. c) List negotiation skills in delivery of health care services. d) Explain the importance of networking and negotiation in delivery of health care services	Networking and negotiation techniques in delivery of health care services described	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment report
1.2.1 Describe health promotion programmes related to pharmaceutical care and services.	b) Identify health promotion b) Identify health promotion programmes related to pharmaceutical care and services c) Explain steps in conducting health promotion related to	related to pharmaceutical care and services described.	Written tests Assignments	Checklist Ouestion papers and marking scheme Assignment report

pharmaceutical health care and services

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Sub-enabling outcomes	Related Tasks	Assessment Criteria	Assessment Methods	Assessment Instruments
	d) Explain importance of health care promotion programmes.			1.7
1.2.2 Explain concepts and principles of pharmaceutical public health	a) Define public health b) Explain principles of public health c) Explain principles of pharmaceutical public health d) Explain importance of pharmaceutical public health in provision of health care services.	Concepts and principles of pharmaceutical public health explained	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment report
1.2.3 Describe the concept of advocacy in relation to provision of pharmaceutical services.	a) Explain concepts of advocacy b) Differentiate between advocacy, sensitisation and mobilisation c) Explain approaches of conducting advocacy d) List components of advocacy plan e) Carry out needs assessment for advocacy f) Explain steps in conducting advocacy g) Explain the importance of advocacy in promoting rational use of medicines.	Concept of advocacy in relation to provision of pharmaceutical services described.	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment report
1.3.1 Describe counselling and guidance techniques in promoting rational use of medicines	a) Define counselling and guidance b) Differentiate between counselling and guidance c) Explain counselling and guidance techniques. d) Identify situations requiring counselling. e) Identify situations requiring guidance. f) Explain the role of counselling and guidance in promoting	1	Oral questioning Written tests Assignments OR TECHNICAL BOX 7109 SALAAM * 101	Checklist Question papers and marking scheme Assignment report

Sub-enabling outcomes	Related Tasks	Assessment Criteria	, recoonicité	Assessment
1.3.2 Describe operating mechanisms of Care and Treatment Clinics (CTC)	a) Explain operating procedures of CTC. b) Describe the role of pharmaceutical personnel in CTC c) Explain interrelationship between health	Operating mechanisms of	Methods Oral questioning Written tests Assignments	Instruments Checklist Question papers and marking scheme Assignment report
1.3.3 Describe various methods to encourage adherence, compliance and concordance to treatment	workers in CTC a) Define adherence, compliance and concordance b) Differentiate between adherence, compliance and concordance c) Explain the importance of adherence, compliance and concordance in treatment d) List reasons for non-adherence e) List methods of improving adherence	concordance to treatment described	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment report
2.1.1Describe procedures and processes of producing solid dosage forms	and compliance a) Define terminologies used in tablets and capsule production b) Explain concept and principles of powder technology in relation to solid dosage forms c) Classify and explain solid dosage forms d) Explain formulation and production of tablets and capsules e) List common problems and remedies in tableting and encapsulation	TAOL THE TANK	Written tests Assignments	Checklist Question papers and marking scheme Assignment eport
quality control and assurance	processes Explain the concept of in-process quality control List tests and equipment/tools/appar atus used for in-process quality control of tablets and capsules	and assurance	Written tests Quantum Assignments an sc	necklist uestion papers ad marking heme signment port

hapt prison and pri

Sub-enabling		Related Tasks	Assessment	Assessment	Assessment
outcomes			Criteria	Methods	Instruments
	d) e)	Explain the consequences of in- process quality control of tablets and capsules. Explain the role of qualification equipment and validation of processes in assuring the quality of the tablets and capsules List documents used in production of tablets	10	O. BOX 7106	
	f)	end capsules Explain importance of documentation in pharmaceutical production	Waste	Oral questioning	Checklist
2.1.3 Describe waste management and disposal in pharmaceutical	a)	Explain the importance of waste management in pharmaceutical production	management and disposal in pharmaceutical production described	Written tests Assignments	Question papers and marking scheme Assignment report
production	b)	List types of wastes in pharmaceutical production	300011300		
	c)	Explain methods of waste management in pharmaceutical production			
	d)	Describe control of substances hazardous to health (COSHH) in pharmaceutical production.			
2.1.4 Describe premise and equipment maintenance procedures in	a)	Explain maintenance procedures of premise and equipment in pharmaceutical manufacturing.	Premise and equipment maintenance procedures in pharmaceutical	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment
pharmaceutical manufacturing facilities	b)	Differentiate documents relevant to premise and equipment maintenance in GMP	manufacturing facilities described		report

complaint facility

Sub-ena outcom	oling les	Related Tasks	\$	Assessm		Assessi	ment	Assessm
		c) Explain GMP		Criteri	a	Metho		
		principles in relat			nie de die			Instrume
		premise and	ion to					1
						1		
	1	equipment						
2.2.1 Describ		maintenance.						
Dolining -	e	a) Explain sections of	of	Deli				
policies and		Tanzania Food, D	,, 	Policies and		Oral question	ning	Ci
legislations		and Cosmetics Ac	rugs	legislations		Written tests	- Iming	Checklist
governing		2002 1	t,	governing	1			Question pap
manufacturing	of	2003 regulating	ı	manufacturing	of	Assignment	s	and marking
pharmaceutica	ele	manufacturing of	1	pharmaceutica			- 1	scheme
	513	pharmaceuticals	- 1	described.	18			Assignment
	1	- Company of the Comp		described.				report
	1 5) Explain sections o	f		1			report
	- 1	the Environmental					1	
	ļ	Management Act,	1				İ	
		2004 regulating						
		manufact						
	-	manufacturing					1	
	(c)	JOHN TEGISTISTION	7	manusana.	INCI	FORTEC		
	1	procedures for		13,00		FOR TE	İ	
		pharmaceutical		1121	1	Sec. S. Sec.		
	-	manufacturing		1121	P.d.	0X710s		
		facilities.		HEAL	9.8	0x2,	(21)	
	d)			Mary 1	- 1	1109	1211	
	10)	Explain the role of					101	\$.
		Tanzania Investment	- 1	41.0	PESSEA!	The state of the s	-5	
		Centre in supporting			2	MAM * R		
	Ì	establishment of			1	-	1	
	1	pharmaceutical			ĺ		1	
		industries	1		1		1	
2.2.2 Describe the	e (a)							
importance of	,	Define environmental	Im	portance of	10-			
environmental	b	impact assessment	en	vironmental	018	al questioning	3 Che	ecklist .
impact	(0)	Explain steps in		pact	VVr	itten tests	Que	estion papers
assessment in		conducting			Ass	signments	and	marking
establish:		environmental impact	055	essment in	1		sch	eme
establishing	1 6	essessment	esta	ablishing large				
manufacturing of		The state of the s	sca		1			ignment
pharmaceuticals	1862		mar	nufacturing of			repo	ort
	-	environmental impact	pha	rmaceuticals				
		ssessment	desc	cribed				1
	1	ist benefits of		/000/2008				1
		nvironmental impact	1					1
223 5		ssessment						1
2.2.3 Explain		xplain the role of	C					
statutory taxes	Ta	anzania revenue	Statu	itory taxes	Oral	questioning	Ch	
and licencing	aı	ithority in	and I	icencing	Writte	en tests	Chec	
procedures in	00	toblish	proce	dures in			Quest	tion papers
establishing	es ,	tablishment of	estab	lishing large	rissig	nments	and m	narking
nanufacturing of	ph	armaceutical	scale	a raige			schen	ne
harmaceuticals		lustries		facturing of		1.	Assigr	nment
	b) Ex	plain the role of	nharr	racturing of			report	•
	Tai	070	pilarm	aceuticals		1	-port	
	Dri	gs Authority in	explai	ned				
	Act.	Shickmant of				1		
	nh-	ablishment of		1				
	hus	rmaceutical		1				1
	Indi	stries		1		1		1

Sub-enabling outcomes	Related Tasks	Assessment Criteria	Assessment Methods	Assessment Instruments
	c) Explain the role of Business Registrations and Licencing Agency (BRELA) in establishment of pharmaceutical industries d) List taxes, levy and tariffs applicable to pharmaceutical industries			
2.3.1 Describe the importance of Standard Operating Procedures (SoPs) in the production of pharmaceuticals	 a) Define SoP b) List types of SoP in the production of pharmaceutical c) Explain the need of SoP in production d) Explain the development and approval process of SOPs 	Importance of Standard Operating Procedures (SoPs) in the production of pharmaceuticals described	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment report
2.3.2 Describe the components of SoP	a) Define the SoP of SoPs b) List components of SoP of SoPs c) Explain the importance of SoP of SoPs in production	Components of SoP described	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment report
2.3.3 Carry out quality tests for raw materials and finished pharmaceutical products	a) Explain the importance of quality testing of raw materials and finished pharmaceutical products b) List quality tests for raw materials and finished pharmaceutical products c) Explain methods for testing raw materials and finished pharmaceutical	130	Oral questioning Written tests Assignments OX 7109	Checklist Question papers and marking scheme Assignment report
3.1.1 Describe management concept and functions	products a) Define different terms used in management b) Explain the historical development of management theory. c) Distinguishing	Management concept and functions described	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment report

between various

Sub-enabling outcomes	Related	Tasks	Assessme	nt Assessme	
outcomes.			Criteria	7.00033fffe	, toocssment
	d) Enumerate			Methods	Instruments
	manageme	nt functions			
	e) Describe th	е	7		
	relationship	between			
	manageme	nt functions			
	f) Explain diffe	erent			
	managemer	nt schools			
	of thoughts				
3.1.2 Describe					
organization	a) Define orgar	nization	Organization	01	
behaviour in	culture		behaviour in	Oral questionir	
relation to	b) Explain cultu	ral	relation to	Written tests	Question papers
workplace	diversity in re	lation to	workplace	Assignments	and marking
	workplace ar	ıd	productivity		scheme
productivity	productivity	ė.	described.		Assignment
	c) Relate produc	ctivity in	dedenbed.		report
	workplace wit	h			
240 51	management				
3.1.3 Differentiate	a) Describe form		Forms of		
forms of	leadership			Oral questioning	Checklist
leadership and	b) Describe man	acement	eadership and	Written tests	Question papers
management	style		management styles	Assignments	and marking
styles	c) Relate forms of		differentiated		scheme
	leadership with		mrerentiated		Assignment
0.1	management s				report
3.1.4 Distinguish	a) Describe types		Orious at		
various structures	organizations	3	arious structures	9-000011110	Checklist
of organisations	b) Describe orga	enization d	f organisations	Written tests	Ouestion papers
	structures.	Jill Zation U	istinguished	Assignments	and marking
	c) Draw organizat	ional			scheme
	charts or diagra	ame			Assignment
	d) Explain principle	es of			report
	organizations (S	Scalar			
	chain of comma	ind			
	specialization, u	nit of			
	command and s	nan of			
	control)	po., 0,			
	e) Describe relation	shine			
	within organizati	on			
	structures (vertic	al			
	horizontal, function	onal			
L	formal and inforn	nal)		and the second second	
f	Describe relation	ship		COUNCILFOR	
	with external			137	ECHIL
	organizations			101	JASC /
9		n and		14 .0.80x	, E
	its principles			1.0.80x	100
h)	Explain advantage	es			
	and disadvantage	s of		The sales	MENTINE
	delegations				****
i)	Describe organiza	tion			
	context (Political,				
	economic and soc	ial			

Sub-enabling outcomes	Related Tasks	Assessment Criteria	Assessment Methods	Assessment Instruments
	atmosphere)			
3.1.5 Describe leadership attributes in provision of pharmaceutical services	a) Differentiate between a leader and a manager b) List leadership attributes c) List leadership skills	Leadership attributes in provision of pharmaceutical services described	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment report
3.2.1 Describe national policies related to provision of health care services.	a) List objectives and components of Tanzania Vision 2025 b) List objectives and components of Alma-Ata Declaration c) List objectives and components of agenda 21 of Rio de Janeiro d) List objectives and components of Millenium Development Goals	National policies related to provision of health care services described.	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment report
.2.2 Describe the rimary health are concept and rinciples	a) State vision and mission of the MoHSW b) List levels of health care in Tanzania c) Define primary health care d) List principles of primary health care e) List objectives and components of Primary Health		Oral questioning Written tests Assignments ORTECA BOX 710s	Checklist Question papers and marking scheme Assignment report
.2.3 Describe omponents of the ational Health olicy	Services Development Programme (PHSDP a) State vision and mission of the National Health Policy, 2003 b) List objectives of the National Health Policy c) Explain the link between National Health Policy to the National Medicine	Components of the National Health Policy described.	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment report
3.1 Describe the oncept and rinciples of other orders of other	Policy a) Define terms used in entrepreneurship b) Explain historical development and	A NOWANA STRUKTS DOWN CONTROL MISSES	Assignments	Checklist Question papers and marking scheme

Sub-enabling outcomes		Related Tasks	Assessment Criteria	Assessment Methods	Assessment Instruments
	c)	Explain concept and principles of entrepreneurship			
	d)	Differentiate between intrapreneurship and entrepreneurship.	- I amende	Annual (commence) as an artist of the commence	
	e)	Explain the importance of entrepreneurship in the economy and pharmacy profession	A LOU	CIL FOR TECHNICA	
3.3.2 Dictinguish	f)	Explain national strategy for economic empowerment and poverty reduction (NSEGPR) MKUKUTA objectives and National Development Vision 2025.		RESEALLAM + 10	
3.3.2. Distinguish between types of entrepreneurs and their key	a) b)	Describe types of entrepreneurs Describe characteristics of	Types of entrepreneurs and their key competencies	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme
competencies	c)	Enumerate inherent competencies of entrepreneurs	distinguished		Assignment report
	d)	Explain factors influencing tendency to engage in entrepreneurship			
3.3.3 Explain challenges	9)	List challenges faced by entrepreneurs	Challenges encountered by	Oral questioning Written tests	Checklist Question papers
encountered by entrepreneurs in provision of pharmaceutical services	b)	Explain ways to address challenges faced by entrepreneurs	entrepreneurs in provision of pharmaceutical services explained	Assignments	and marking scheme Assignment report
	d)	misconceptions/myths about entrepreneurs Explain the role of innovation and creativity in entrepreneurship			
3.3.4 Describe concept and principles of marketing and sales of pharmaceuticals		Explain concept and principles of marketing List marketing skills needed in sales of pharmaceuticals Explain ethical issues in marketing and sales	Concept and principles of marketing and sales of pharmaceuticals described	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment report

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Sub-enabling outcomes		Related Tasks	Assessment Criteria	Assessment Methods	Assessment Instruments
3.3.5 Describe procedures and requirements for	a)	List types of medicines and medical supplies outlets in Tanzania	Procedures and requirements for establishing	Oral questioning Written tests Assignments	Checklist Question papers and marking
establishing marketing outlets for medicines and medical supplies	b)	List requirements for establishing medicines and medical supplies outlets (ADDO, pharmacies and warehouses etc)	marketing outlets for medicines and medical supplies described	Assignments	scheme Assignment report
*	c)	Explain the procedures for establishing medicines and medical supplies outlets			
3.4.1 Describe health financing	a)	Explain the concept of health financing	Health financing mechanisms described	Oral questioning Written tests Assignments	Checklist Question papers and marking
mechanisms	b)	List health financing mechanisms (Insurance, direct purchase, user fee, Government subsidy etc)		TECHVIC	scheme Assignment report
	c)	Explain how each health financing mechanism operates	P.O. 90.	K 7109	
	d)	Enumerate advantages and disadvantages of each health financing mechanism	ARES SA	AAM	
3.4.2 Describe public financing through	a)	Explain the role of government in medicines and medical	Public financing through Government	Oral questioning Written tests Assignments	Checklist Question papers and marking
Government subvention	b)	supplies financing Distinguish various public financing strategies	subvention described		scheme Assignment report
	c)	Explain control of expenditures for medicines and medical supplies			Constitution
	d)	List challenges in public financing of medicines and medical supplies			Output of
3.4.3 Describe health insurance mechanisms	a) b)	Explain the concept of health insurance List health insurance agencies in Tanzania	Health insurance mechanisms described	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme
	c)	List benefits and challenges associated with health insurance		, s	Assignment report

	Sub-ena	abling							U-	
	outcor	nes	Related Tas	ks	Assess	mont	T	-		
	4.1.1 Descr	ribe	a) Define commo		Crite		Assess		Assess	ment
	basic statist	tical	, - ome contitiol	n terms	Basic statis	stical	Meth		Instrum	
	concepts ar	nd	in biostatistics b) Explain the imp		00	nd	Oral ques	stioning	Checklist	
a garage	principles	j	, and the fillip	ortance	principles	,,,	Written te	sts	Question p	papers
			of different mea	sures	described		Assignme	ents	and marking	ng
1			in statistics (cen	tral					scheme	
			tendency, quarti	le and					Assignmen	it
		F	c) Explain the appli					1	report.	
4			יוויטיאייי וווכ מנווווו	cation	¥2			1		
			of statistics in da analysis	ta		1				
	4.1.2 Summa	rize ;	Define data		16					
	data using ba	n: -	- Time dota		Data using ba	asic	Oral quanti			
	statistical		- JPC3 OI dala		statistical		Oral question Written tests	5557	Checklist	
	principles to	1	 List and explain methods of 		principles to		Assignment		Question pa	pers
	support decision	on	summarizing data		support decis	ion	, toolgriment	S 6	and marking	
	making in		(charts tables	1	making in			1	scheme	.
	provision of		(charts, tables, gra		provision of				Assignment	
	pharmaceutica	(d)		F	pharmaceutica	al		10	eport	
	services.	'	which each method	1	ervices					
	1		used	IS S	ummarised.					
	1125									
	4.1.3 Establish trends in health	a)	Generate tables,							
	care services		charts and graphs	1 60	stablish trend	s in O	ral questioni	ing Cr	necklist	
	oute services	(b)	Interpret tables, cha		ealth care	- / VV	/ritten tests		recklist restion pape	_
			and graphs	113 56	rvices	As	ssignments	an	d marking	rs
		(c)	Relate information					sch	neme	
			from interpretation to	,				1	signment	
	4.2.1 Describe		project future results					rep		
	basic concept and] (s)	Explain the concept		sic concept ar		Re-19			
	principles of	4	and principles of	prir	nciples of		al questionin	g Che	ecklist	
	research		research	rec	earch	. VVr	itten tests	Que	estion papers	s
		b) I	Explain the important		cribed	Ass	signments	and	marking	
			or research in			I FOR T	The state of the s	sche		
		, F	harmaceutical		COUNC	L FOR T	ECHANIC		gnment	
		7.22.00	ervices		1131		155	repo	rt	
			xplain ethical		lial e	0. BOX ;	710e \S	1)		
		d) 10	learance in research		M. C.	- 1	13.	И		
- 1			, -,,,,,	of	DAD	D'OLD	3013/	4		
			esearch requiring Thical clearance	3 -	and the same of th	ESSALA	AM			
	4.2.2 Differentiate	a) C	assify research							
	between various	b) Ex	xplain classes of	- Vario	us types of	Oral	questioning	Chec	klist	}
1	types of research	re	search	resea		Writte	en tests		tion papers	
			plain approaches	differe	entiated		inments	and m	narking	
		an	d strategies used in			0.000		schem		
<u> </u>		res	search				1	Assigr		
	.2.3 Describe		ntify research	Dra	4			report		
	rocedures for	pro	blem		dures for	Oral q	uestioning	Check	list	
	onducting peration - 1		plain the role of	condu		Writte	n tests		on papers	
	perational	liter	ature review in	operat researe		Assign	ments	and ma	arkina	
1 16	search	rese	earch	describ				scheme		
		c) Exp	lain development	GCSCIID	,eu			Assignr	ment	
		of a	research proposal		1			report		
	(d) Expl	ain methods and					5		N.

Sub-enabling outcomes	Related Tasks	Assessment Criteria	Assessment Methods	Assessment Instruments
4.3.1 Explain the concept of charmacovigillance	process for data collection e) Explain methods and process for data analysis f) Explain the procedure for writing research report g) Explain methods for dissemination of research findings a) Define terminologies in pharmacovigillance b) List aims of pharmacovigillance c) Identify and explain pharmacovigillance methods d) Explain different ways of documenting and reporting pharmacovigillance data e) Explain the importance of pharmacovigillance information	Concept of pharmacovigillanc e explained	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment report
4.3.2 Describe the procedures for monitoring and detection of adverse drug reactions (ADRs)	a) Classify ADRs b) Explain the importance of monitoring ADRs in pharmacy practice c) Explain documentation and reporting of ADRs d) List centres for	Procedures for monitoring and detection of adverse drug reactions (ADRs) described	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment report
4.3.3 Describe methods of controlling substandard and counterfeit medicines	a) Define substandard and counterfeit medicines b) Distinguish between counterfeit and substandard medicines c) Explain the effect of substandard and counterfeit medicines in the public health d) List and explain methods for detecting	Methods of controlling substandard and counterfeit medicines described	OX 7109	Checklist Question papers and marking scheme Assignment report

Sub-enabling outcomes	Total Tusks	Assessmen Criteria	t Assessmen Methods	, and a desired
	e) List and explain methods for controllin substandard and counterfeit medicines		Wethods	Instrument
4.3.4 Explain factors contributing to distribution of substandard and counterfeit medicines	a) List factors contributing to existence of substandard and counterfeit medicines b) Identify possible points of entry for substandard and counterfeit medicines into Tanzania	Factors contributing to distribution of substandard and counterfeit medicines explained	Oral questionin Written tests Assignments	g Checklist Question pape and marking scheme Assignment report
5.1.1 Explain the	c) Identify loopholes contributing to spreading of substandard and counterfeit medicines in health systems d) Explain mechanisms for curbing spread of substandard and counterfeit medicines in Tanzania	2011	P.O. BOX 7109	The state of the s
principles and concept of pharmacotherapy	a) Define terms used in pharmacotherapy b) List principles and concepts applied in pharmacotherapy c) Explain the importance of pharmacotherapy in management of common human diseases	Principles and concept of pharmacotherapy explained	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment report
ommunicable Seases	b) Explain pathophysiology of	Knowledge of pharmacotherapy in management of common communicable diseases applied	Written tests Assignments	Checklist Question papers and marking scheme Assignment eport

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Sub-enabling outcomes	Related Tasks	Assessment Criteria	Assessment Methods	Assessment Instruments
	d) Monitor therapy of common communicable disease			
5.1.3 Apply knowledge of pharmacotherapy in management of common non communicable diseases	a) Define the disease status of a patient b) Explain pathophysiology of common non communicable disease	Knowledge of pharmacotherapy in management of common non communicable diseases applied	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment report
	c) Relate diagnosis and therapy of common non communicable disease			
	d) Monitor therapy of common non communicable disease			**
5.2.1 Describe principles and concept of veterinary	a) Define terminologies used in veterinary pharmacology	Principles and concept of veterinary medicine	Oral questioning Written tests and assignment	Question papers Marking schemes Assignment
medicine	b) Describe principles and concepts applied in veterinary medicine	described		reports
	c) Explain the importance of veterinary medicines in the management of common animal diseases			
5.2.2 Classify veterinary medicines	a) List sources of veterinary medicines	Veterinary medicines are classified	Oral questioning Written tests and assignment	Question papers Marking schemes
according to pharmacological activities	b) Describe toxic and therapeutic doses of common veterinary medicines	according to pharmacological activities		Assignment reports
	c) Describe the pharmacological/thera peutic classes of essential veterinary medicines	/Soon	BOX 7109	

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Sub-enablir outcomes		Assessmen	t Assessme	ant 6
5.2.3 Apply		Criteria	Methods	, locosment
knowledge of	a) Describe the rational	ale Knowledge of		"Totalicits
pharmacology	of using veterinary	pharmacology in	Oral question Written tests	-
treatment of	in medicines	treatment of	and assignment	manning
common		common	and assigning	
veterinary	b) Describe clinical use	3330		Assignment
diseases	veterinary medicines	- 01	1	reports
250000 T	treatment of commo			
	animal diseases			
	1000 A 1001 A 1000			
St.	c) Describe dose, dosa	ge		
	and course of			
	veterinary medicines			
	used for common	1		
	animal diseases	,85 9		
	-3\ .			
	d) List contraindications			
	of common veterinary			
	medicines			
	e) List important side			
	effects and adverse			
	effects of common	**		
	Veterinary medicines			
5.3.1 Describe the	a) Define terms used in	-		
concept and	monitoring and	Concept and	Oral questioning	Checklist
principles of	evaluation	principles of	Written tests	Question papers
monitoring and	b) Differentiate between	monitoring and	Assignments	and marking
evaluation	monitoring and	evaluation		scheme
	evaluation	described		Assignment
				report
	c) Explain the importance	7		
	of monitoring and			
	evaluation in			
	pharmacy practice			
.3.2 Describe				
components of	- The street of	Components of	Oral questioning	Checklist
VHO operational	WHO operational	WHO operational	Written tests	Question papers
ackage for	package for assessing monitoring and	package for	Assignments	and marking
ssessing	evaluation of country	assessing		scheme
nonitoring and	pharmaceutical	monitoring and		Assignment
valuation of	situations	evaluation of		report
ountry	ondutions .	country		
harmaceutical	b) F	pharmaceutical		
tuations	b) Explain each	situations		
×	component of WHO	described		
	operational package	11		
	for assessing	TINCI	L FOR TE	
	monitoring and		TECKNIE CENT	
	evaluation of country pharmaceutical	1/27	ACM.	
	situations	121	.30×7100	
	Situations		1000	!!
				<i>)</i>
	*.	The state of the s	SALAAM + BO	
			and the control about the filter of the following	

Sub-enabling outcomes	Related Tasks	Assessment Criteria	Assessment Methods	Assessment Instruments
	c) List performance indicators in monitoring and evaluation of different pharmaceutical situations			
5.3.3 Identify common drawbacks in monitoring and	a) List factors hindering monitoring and evaluation of medicines use	Common drawbacks in monitoring and evaluation of	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme
evaluation of medicines use	b) Explain factors hindering monitoring and evaluation of medicines use	medicines use correctly identifies		Assignment report
	c) Identify measures to improve monitoring and evaluation of medicines uses			**************************************
5.3.4 Describe common indicators in medicines use	a) List indicators used in monitoring and evaluation of medicines use b) Explain application of each indicator in	Common indicators in medicines use described	Oral questioning Written tests Assignments	Checklist Question papers and marking scheme Assignment report
	monitoring and evaluation of medicines use c) Describe tools used in monitoring and evaluation of medicines use	P.O. BO	CACAL.	Abredity-y Wilestrands Consumen

11.2 Benchmarking of Assessment Criteria

BENCHMARK
A LEARNER HAS ABILITY TO/ KNOWLEDGE/ CAN.

Assessment Criteria	SATISFACTORY	GOOD	EXCELLENT
1.1.1 Concept of participatory planning in provision of health care services described	Define participatory planning	Define and list steps in participatory planning.	Define list steps and explain the importance of participatory planning in pharmaceutical services.
1.1.2 Role of pharmaceutical personnel in health care teams described	Explain stages of team development	Explain stages of team development and the role of pharmaceutical personnel in health care team	Explain stages of team development, the role of pharmaceutical personnel in health care team and importance of team work in delivery of health care services

1.1.3 Networking an	04 D. c.		
negotiation technique in delivery of health care services describ	negotiation	negotiation, list network and negotiation skills in delivery of health care	king negotiation, list networking,
		services.	negotiation skills and explain the importance of networking and negotiation in delivery
1.2.1 Health promotio	n Define health		of health care
programmes related to pharmaceutical care	o promotion	Define health promotion Identify health promotion	Define health
and services describe	d	programmes and explain	hadden, identity
		steps in conducting healt	health promotion programmes, explain
		promotion related to	steps in conducting
		pharmaceutical health ca	re health promotion and
			importance of health care promotion
			programmes related to
1.2.2 Concepts and	Det		pharmaceutical health
principles of	Define public health and explain principle	Public Health eval	care and services
pharmaceutical public	of public health,	principles of public health	Define public health, explain principles of
COUNCIL F	OR TECHAN	and explain principles of pharmaceutical public heal	public health, Explain
(3)	(SE)	- addit public fleat	ui principles of '
(5) t.o.,	OX 7109		pharmaceutical public health and importance
The state of the s	1 12		of pharmaceutical
DAR ES	MLAAM !		public health in
1.2.3 Concept of	Explain concepts of		provision of health care services
advocacy in relation to provision of	advocacy	Explain concepts of	Explain concepts of
pharmaceutical		advocacy, differentiate between advocacy,	advocacy, explain
services described.		sensitisation and mobilisation	approaches of
		and explain approaches of	conducting advocacy, list components of
		conducting advocacy	advocacy plan and
			importance of
1240			advocacy in promotional of rational
1.3.1 Counselling and guidance techniques in	Define and	Define, differentiate between	use medicines.
promoting rational use	differentiate between	Counselling and guidance	Define, differentiate
Of medicina - 1	Counselling and guidance.	Identity situations requiring	between counselling and guidance, identify
1 0 5		guidance and counselling and explain counselling and	situations requiring
		guidance techniques	guidance and
		• = ===================================	counselling, and explain the role of
5			counselling and
	20.2		guidance in promoting
1.3.2 Operating Ex	xplain operating		rational use of medicines.
nr.	0 - 1	Explain operating procedures	Explain operating
and Treatment Clinics (CTC) described	1	of CTC and describe the role of pharmaceutical personnel	procedures of CTC.
, 3011000		in CTC	describe the role of pharmaceutical
			Prioritiaceutical

		Г	interrolationship
			interrelationship between health workers in CTC
1.3.3 Various metho	ds Define adherence,	Define, adherence,	Define adherence,
	1	compliance and concordance	compliance and
to encourage	compliance and concordance and	, differentiate between	concordance
adherence, complia and concordance to	differentiate between	adherence, compliance and	,differentiate between
treatment described	A PERSONAL PROPERTY OF THE PRO	concordance and explain the	adherence,
treatment described	compliance and	importance of	compliance and
	concordance	adherence, compliance and	concordance, explain
	Concordance	concordance in treatment	the importance of
-		Corrected for the destriction	adherence,
			compliance and
			concordance in
			treatment, list reasons
		-	for non-adherence and
			methods of improving
		* ,	adherence and
			compliance
2.1.1 Procedures ar	d Define terminologies	Define terminologies used in	Define terminologies
processes of produc	ing used in tablets and	tablets and capsule	used in tablets and
different dosage for	ms capsule production,	production, list tests and	capsule production,
described	list tests and	equipment/tools/apparatus	explain concept and
	equipment/tools/appar	used for in-process quality	principles of powder
	atus used for in-	control of tablets and	technology in relation
	process quality control	capsules and list documents	to solid dosage forms,
	of tablets and	used in production of tablets	explain formulation
ū.	capsules and	and capsules explain concept	and production of
	documents used in	and principles of powder	tablets, capsules, concept of in-process
	production of tablets	technology in relation to solid dosage forms.	quality control and
•	and capsules.	dosage forms.	explain the role of
			qualification equipment
W K	*		and validation of
111			processes in assuring
			the quality of the
9			tablets and capsules.
2.1.2 Quality control	List tests and	Explain the concept of in-	Explain the concept of
and assurance	equipment/tools/appar	process quality control; List	in-process quality
procedures in	atus used for in-	tests and	control; List tests and
pharmaceutical	process quality control	equipment/tools/apparatus	equipment/tools/appar
production describe		used for in-process quality	atus used for in-
	capsules; List	control of tablets and	process quality control
	documents used in	capsules; List documents	of tablets and capsules; Explain the
	production of tablets	used in production of tablets	capsules, Explain the
	and capsules; Explain	and capsules; Explain importance of documentation	process quality control
	importance of documentation in	in pharmaceutical production	of tablets and
	pharmaceutical	, in pharmaceutical production	capsules; Explain the
IL FOR TECH	production "		role of qualification
The same of the sa	production		equipment and
181			validation of processes
2.0. BOX 7109)C			in assuring the quality
131	*		of the tablets and
RECEILAN	=		capsules; List

			and capsules; Explair
			importance of
			documentation in
			pharmaceutical
2.1.3 Waste	List types of wastes	in Links	production
management and	pharmaceutical		in List tunes of
disposal in	productions	importance and methods of	of explain importance
pharmaceutical	productions	waste management in	and matha-land
production described		pharmaceutical production	management also
			describe control of
	8		substances hazardous
			to health (COSHH) in
			pharmaceuticals
2.1.4 Premise and	Evolain maint		production.
equipment	Explain maintenance	Explain maintenance	Explain maintenance
maintenance	procedures of premise	procedures of premise and	procedures 6
procedures in	and equipment in	equipment in pharmaceutical	and equipment in
pharmaceutical	pharmaceutical	manufacturing and	pharmaceutical
manufacturing facilities	manufacturing.	differentiate documents	manufacturing,
described		relevant to premise and	differentiate
		equipment maintenance in	documents relevant to
		GMP complaint facility	premise and
			equipment
			maintenance in GMP
			complaint facility and
			explain GMP principles
			in relation to premise
.2.1 Policies and			and equipment
gislations governing	Explain sections of	Explain sections of Tanzania	maintenance
anufacturing of	Tanzania Food, Drugs	Food, Drugs and Cosmetics	Explain sections of
narmaceuticals	and Cosmetics Act,	Act, 2003 regulating	Tanzania Food, Drugs
escribed.	2003 regulating	manufacturing of	and Cosmetics Act,
	manufacturing of	pharmaceuticals and sections	2003 regulating
	pharmaceuticals	of the Environmental	10,1119
		Management Act, 2004	pharmaceuticals,
		regulating manufacturing	sections of the
3			Environmental
	TOY FO		Management Act,
· ·	COUNCIL FOR TECHA		2004 regulating
			manufacturing and
1131	P.O. RO.	7/1/	describe registration
NA CONTRACTOR OF THE CONTRACTO	P.O. BOX 7109	الالا	procedures for
M.		\$7 /	pharmaceutical
	PAR ES SALAAM E	? <i>()</i>	manufacturing facilities
9	THE WAY		also explain the role of
		g.	Tanzania Investment
			Centre in supporting
fi fi			establishment of
et a	İ		
) Importance of			pharmaceutical
2 Importance of D	efine environmental	Define environmental in	industries
ronmental impact in	npact assessment a	Define environmental impact	industries Define environmental
ronmental impact in ar	npact assessment and explain steps in co	ssessment, explain steps in	Define environmental impact assessment,
ronmental impact in ar ssment in ar co	npact assessment and explain steps in conducting in	ssessment, explain steps in onducting environmental	Define environmental impact assessment, explain steps in
ronmental impact impact impact impact in ar continuous	npact assessment and explain steps in conducting in	ssessment, explain steps in onducting environmental appact assessment and list	Define environmental impact assessment,

			benefits of environmental impact assessment.
2.2.3 Statutory taxes and licencing procedures in establishing large scale manufacturing of pharmaceuticals explained	List taxes, levy and tariffs applicable to pharmaceutical industries	List taxes, levy and tariffs applicable to pharmaceutical industries, explain the role of Tanzania revenue authority, Tanzania Food and Drugs Authority in establishment of pharmaceutical industries	Explain the role of Tanzania revenue authority, Tanzania Food and Drugs Authority and Business Registrations and Licencing Agency (BRELA) in establishment of pharmaceutical industries.
2.3.1 Importance of Standard Operating Procedures (SoPs) in the production of pharmaceuticals described	Define SoP, List types of SoP in the production of pharmaceuticals	Define SoP, List types of SoP in the production of pharmaceuticals and explain the need of SoP in production	Define SoP, List types of SoP in the production of pharmaceuticals, explain the development and approval process of SOPs and the need of SoP in production.
2.3.2 Components of SoP described	Define the SoP of SoPs	Define the SoP of SoPs and list components of SoP of SoPs	Define the SoP of SoPs, list components of SoP of SoP and explain the importance of SoP of SoPs in production
2.3.3 Quality tests for raw materials and finished pharmaceutical eroducts carried out	List quality tests for raw materials and finished pharmaceutical products	List quality tests for raw materials and finished pharmaceutical products and explain the importance of quality testing of raw materials and finished pharmaceutical products	List quality tests for raw materials and finished pharmaceutical products, Explain the importance of quality testing and methods for testing raw materials and finished pharmaceutical products
3.1.1 Management concept and functions described	Define different terms used in management and enumerate various management functions	Distinguish between various management theories and their pioneers and explain different management schools of thoughts	Distinguish between various management theories and their pioneers, explain different management schools of thoughts and describe the relationship between management functions
3.1.2 Organization behaviour in relation to workplace productivity described.	Define organization culture	Define organization culture and explain cultural diversity in relation to workplace and productivity.	Define organization culture, explain cultural diversity in relation to workplace and productivity and relate productivity in

2.1.2 [2.22.25]			
3.1.3 Forms of	Describe forms of	Describe forms of leadership	Describe forms of
leadership and	leadership	and describe management	leadership, describe
management styles		styles	management style and
differentiated			relate forms of
			leadership with
			management styles
3.1.4 Various structures	Explain advantages,	Describe types of	Describe types and
of organisations	disadvantages of	organizations, draw	principles of
distinguished	delegation and its	organizational charts or	organizations, draw
	principles.	diagrams and describe	organizational charts
SCOUNCIL FOR TEC		relationships within	or diagrams, describe
1/2/ EC		organization structures	relationships within
	K.C.	•	organization
F.O. 80X 710	15/		structures, and
100	\ <u>\</u> \ <u>\</u> \ <u>\</u> \ <u>\</u> \ <u>\</u> \ <u>\</u>		relationship with
The same of the sa	1 18	761	external organizations
OAR ES SALAAM +	101		and context (Political,
	+		economic and social
			atmosphere)
3.1.5 Leadership	List leadership	List leadership attributes and	List leadership
attributes in provision of	attributes	skills	attributes and skills
pharmaceutical			and differentiate
services described			between a leader and
			a manager
3.2.1 National policies	List objectives and	List objectives and	List objectives and
related to provision of	components of	components of Tanzania	components of
health care services	Tanzania Vision 2025	Vision 2025, Alma-Ata	Tanzania Vision
described.	and Alma-Ata	Declaration and agenda 21 of	2025,Alma-Ata
	Declaration	Rio de Janeiro	Declaration, agenda
			21 of Rio de Janeiro
			and Millenium
2225		7	Development Goals
3.2.2 Primary health	Define primary health	Define primary health care,	Define primary health
care concept and	care and list levels of	List levels of health care in	care, List levels of
principles described	health care in	Tanzania and principles of	health care in
	Tanzania	primary health care.	Tanzania and
		4	principles of primary
	COUNCIL FOR TECH		health care, levels of
	1200	TO	health care in
	1/27	135%	Tanzania State vision
	P.O. BOX 710g	181	and mission of the
	113	<i>J&!</i>	MoHSW, objectives
	PAR ES SALAAM	2017	and components of
	PALAAM		Primary Health
	2007 (A. 1804 A.	Services Development Programme (PHSDP	
3.2.3 Components of	List objectives of the	List objectives of the National	List objectives of the
the National Health	National Health Policy	Health Policy and state vision	National Health Policy,
Policy described.	100001 100001 100001	and mission of the National	state vision and
		Health Policy, 2003.	mission of the National
36		20), 2000.	Health Policy, 2003
			and explain the link
			between National
			Health Policy to the
			National Medicine
	0		Policy
			,

	principles of	entrepreneurship and	development, theories and	historical development,
	entrepreneurship	differentiate between	importance of	theories importance
	described	entrepreneurship and	entrepreneurship in the	and principles of
	3333,1233	entrapreneurship.	economy and pharmacy	entrepreneurship and
	and the second s	critiapieriodioriip.	profession.	national strategy for
1	OUNCIL FOR TECHNI		provoca.e	economic
3	TO THE STATE OF TH			empowerment and
2/	B 0 202			poverty reduction
31	P.O. BOX 7109	5		(NSEGPR) MKUKUTA
V.V		//		objectives and
CAN.	*DAR FOR			National Development
	*PARES SALAAM * 100			Vision 2025.
	3.3.2 Types of	Enumerate inherent	Enumerate inherent	Enumerate inherent
	entrepreneurs and their	competencies of	competencies of	competencies of
	key competencies	entrepreneurs	entrepreneurs and explain	entrepreneurs,
	distinguished	•	factors influencing tendency	describe types and
	3		to engage in	characteristics of
		*	entrepreneurship	entrepreneurs and
		3		explain factors
				influencing tendency to
	8			engage in
				entrepreneurship
	0.0.0.0	List challenges faced	List challenges faced by	List challenges faced
	3.3.3 Challenges	1	entrepreneurs and	by entrepreneurs,
	encountered by	by entrepreneurs	misconceptions/myths about	misconceptions/myths
	entrepreneurs in			about entrepreneurs
	provision of		entrepreneurs	and explain the role of
	pharmaceutical			innovation and
	services explained			creativity in
	II			entrepreneurship
			Liting a little manded	List marketing skills
	3.3.4 Concept and	List marketing skills	List marketing skills needed	needed in sales of
	principles of marketing	needed in sales of	in sales of pharmaceuticals	4 20 30
	and sales of	pharmaceuticals	and explain concept and	pharmaceuticals,
	pharmaceuticals		principles of marketing	explain concept,
	described			principles of
				marketing, ethical
				issues in marketing
	2			and sales of
				pharmaceuticals
	3.3.5 Procedures and	List types of medicines	List types of medicines and	List types of medicines
	requirements for	and medical supplies	medical supplies outlets in	and medical supplies
	establishing marketing	outlets in Tanzania	Tanzania and requirements	outlets in Tanzania,
	outlets for medicines		for establishing medicines	requirements for
	and medical supplies		and medical supplies outlets	establishing medicines
	described		(ADDO, pharmacies and	and medical supplies
			warehouses etc.)	outlets and explain the
				procedures for
				establishing medicines
				and medical supplies
				outlets
	3.4.1 Health financing	Explain concept of	Explain concept of health	Explain concept of
	mechanisms described	health financing, list	financing, list health financing	health financing, list
	medianisms described	health financing	mechanisms, Explain how	health financing
		mechanisms	each health financing	mechanisms, Explain
		THECHUINITIS	mechanism operates	how each health
	n 11		art overeigne to destart extension specials (CVIII) Extension (CVIII) Extension (CVIII)	financino mechanism

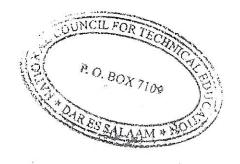
						e 7
						role of innovation and
						creativity in
3.4.2. Public finan	icing	Explain the role of		•		entrepreneurship
I through governme	ent	government in) [Explain the role of		1
subversion describ		medicines and		government in medicine	s and	government in
		medical supplies		medical supplies financi	na	0
		financing and		distinguish various publi	C .	medicines and medica supplies financing,
		distinguish various	_	I mancing strategies and		distinguish varia
		oublic financing	S	explain control of .		distinguish various public financing
	'5	strategies		expenditures for medicin	es	strategies, explain
		ctcgics		and medical supplies		Control of owners til
						control of expenditures for medicines and
						medical curation
	1		38			medical supplies and
				34.49		list challenges in public
3.4.3. Health insurar	nce F	Xnlain the same	,			financing of medicines
mechanisms describ	V 9500 W	xplain the concep	t of	Explain the concept of he	alth	and medical supplies
		-am montance		insurance and list health		Explain the concept of
			i	insurance agencies in		health insurance, list health insurance
	1		1	Tanzania		anencios in T-
			Ì			agencies in Tanzania and list benefits and
			-		1	challenges associated
4.1.1 Basic statistical	De	fine common tern				with health insurance
concepts and principl	es in t	piostatistics	1	Define common terms in		Define common terms
described		100101101103		biostatistics and explain the	}	in biostatistics, explain
COUNCIL FOR TE	The same		- 1	imponance of different	- 1	the importance of
21	Sell.			measures in statistics (cent	ral	different measures in
6 .O. BOX 710	130	1/4	1 1	endency, quartile and	100	statistics (central
1710	E /	2]]	1,	variations)	t	endency, quartile and
		5 <i>)</i> /	İ		V	variations and explain
WAR ES SALAM	100%	/			ti	he application of
DAR ES FALAAM	The second second				s	tatistics in data
Data using basic	Defi	ne data and List	10	ofine del	1 ~	nalysis
atistical principles to upport decision	type:	s of data	l d	efine data and List types of	D	efine data and list
aking in provide			SI	ata and explain methods of	ty	pes of data, explain
aking in provision of narmaceutical			ta	Immarizing data (charts, bles, graphs etc.)	m	ethods of
rvices summarised				etc.)	SL	ımmarizing data
outilinglised			1		(C	harts, tables, graphs
					eto	c.) and conditions in
1.3 Establish trends	1	Mary Control of the C			wh	nich each method is
health care services	Gene	rate tables,	Ge	nerate tables, charts and	US	
and services	Charts	and graphs	gra	phs and Interpret tables,	Ge	enerate tables,
	1		cha	arts and graphs	cha	arts and graphs
				- 3.apm3	Inte	erpret tables, charts
*	1				and	graphs and relate
			1		into	ormation from
1 Basic concept	Identif	1000			futu	rpretation to project re results
principles of	resca-	areas of	lder	ntify areas of research		
earch described	ethical	ch requiring clearance	requ	Jiring ethical clearance	Tess	ntify areas of
-	etriica)	cieatance	C110	explain the concept and	ethic	earch requiring cal clearance,
			princ	ciples of research	expl	ain the concept
					and	principles of
		os .		,	rese	arch, the
					impo	rtance of research
2						The of lesearch

2				
				clearance in research
	4.2.2 Various types of	Classify research	Classify research and explain	Classify research,
	research differentiated		classes of research	explain classes of
	*			research, approaches
				and strategies used in
¥.				research .
	4.2.3 Procedures for	Identify research	Identify research problem,	Identify research
	conducting operational	problem and explain	explain the role of literature	problem, explain the
	research described	the role of literature	review in research,	role of literature review
	and the same of th	review in research	development of a research	in research,
MCI	FOR TECHAR		proposal and methods and	development of a
100	W.C.		process for data collection	research proposal,
2	18			methods and process
9/ P.C	BOX 7109			for data collection,
BEST TO THE				procedure for writing
DAR	SSALAAM + NO.			research report and
The same of the same of	10 is A I A A A W			methods for
				dissemination of
				research findings
	4.3.1 Concept of	Define terminologies	Define terminologies in	Define terminologies in
	pharmacovigillance	in pharmacovigillance	pharmacovigillance, list aims	pharmacovigillance,
	explained	and list aims of	of pharmacovigillance and	list aims of
		pharmacovigillance	explain pharmacovigillance	pharmacovigillance,
4			methods	explain
	*			pharmacovigillance '
				methods, different
				ways of documenting and reporting
				pharmacovigillance
				data and the
				importance of
				pharmacovigillance
				information
	4.3.2 Procedures for	Classify ADRs and list	Classify ADRs, list centres for	Classify ADRs, list
	monitoring and	centres for monitoring	monitoring ADRs and explain	centres for monitoring
	detection of adverse	ADRs	the importance of monitoring	ADRs and explain the
	drug reactions (ADRs)		ADRs in pharmacy practice.	importance of
	described			monitoring ADRs in
				pharmacy practice,
				documentation and
				reporting of ADRs
2	4.3.3 Methods of	Define substandard	Define substandard and	Define substandard
	controlling substandard	and counterfeit	counterfeit medicines,	and counterfeit
	and counterfeit	medicines, list and	distinguish between	medicines, distinguish
	medicines described	explain methods for	counterfeit and substandard	between counterfeit and substandard medicines,
		detecting substandard	medicines, list and explain	list and explain methods
		and counterfeit	methods for detecting and	for detecting and
		medicines -	controlling substandard and	controlling substandard
			counterfeit medicines	and counterfeit medicines
				and the effect of
				substandard and
		=		counterfeit medicines in the public health
				the public fleatiti

4.3.4 Factors			
contributing to	List factors	List factors contributing to	list fact
distribution of	contributing to	existence of substandard	-10,0
substandard and	existence of	counterfeit medicines, ide	
	substandard and	Dossible points of onter	
counterfeit medicine explained	es counterfeit medicin	es substandard and counterf	- 4,14
explained	and identify possibl	e medicines into Tanzania a	in the dictiones,
	points of entry for	a line into i alizalila a	Land booging bolling
	substandard and	identify loopholes contribu	ting of entry for
	counterfeit medicine	to spreading of substanda	rd substandard and
1	into Tanzania	l a de dinche in inedicines	in counterfeit medicines
		health systems	into Tanzania, identify
	The state of the s		loopholes contributing
COUNC	LL FOR TEC	10	to spreading of
1/27	TO THE PARTY OF TH		substandard and
	2.80 × 7100 E	~	counterfeit medicines
West .	180x210 150/1		in health systems and
W. T.	100		explain mechanisms
The state of the s	(28)		for curbing spread of
63	ES AAM + HOUS		substandard and
	and the second	1	counterfeit medicines
5.1.1. Principles and	Doffee		in Tanzania
concept of	Define terms used in	Define terms used in	Define terms used in
pharmacotherapy	pharmacotherapy	pharmacotherapy and List	pharmagath -
explained		principles and concepts	pharmacotherapy, List
		applied in pharmacotherapy	principles and
		, areapy	concepts applied in
1			pharmacotherapy and
			Explain the importance
			of pharmacotherapy in
			management of
5.2.2. Knowledge of			common human
pharmacotherapy in	Define the disease	Define the disease status of a	diseases
management of	status of a patient and	patient, explain	1
common	explain	pathophysiology of common	status of a patient,
communicable	pathophysiology of	communicable disease and	explain
diseases applied	common	relate diagnosis and therapy	pathophysiology of
arecases applied	communicable	of common communicable	common
	disease	disease	communicable
			disease, relate
		¥	diagnosis and therapy
			of common
			communicable disease
			and monitor therapy of
5.1.3. Knowledge of			common
pharmacotherapy in	Define the disease	Define the disease status of a	communicable disease
management of	status of a patient and	patient, explain	Define the disease
common non	explain	pathophysiology of common	status of a patient,
communicable	pathophysiology of	non communicable diseases	explain pathophysiology of common non
diseasos anni:	common non	and relate diagnosis and	communicable
1	communicable	therapy of common non	diseases, relate
	diseases	communicable disease	diagnosis and therapy
		1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	of common non
			communicable disease
		1	and monitor therapy of
		1	common non
			communicable
		1	diseases
	WC 1000 200 200 100 100 100 100 100 100 10		

COA Dissister	T= -		Y
5.2.1. Principles and concept of veterinary medicine described 5.2.2. Veterinary medicines are classified according to	Define terminologies used in veterinary pharmacology List sources of veterinary medicines	Define terminologies used in veterinary pharmacology, and describe principles and concepts applied in veterinary medicine List sources of veterinary medicines and describe toxic and thereposition describe toxic and thereposition describes as a few second for the condition of t	pharmacology, describe principles and concepts applied in veterinary medicine and explain the importance of veterinary medicines in the management of common animal diseases List sources of veterinary medicines,
pharmacological activities	,	and therapeutic doses of common veterinary medicines	describe toxic and therapeutic doses of common veterinary medicines and describe the pharmacological/thera peutic classes of essential veterinary medicines
5.2.3. Knowledge of pharmacology in treatment of common veterinary diseases applied	Describe the rationale of using veterinary medicines, describe clinical use of veterinary medicines in treatment of common animal diseases and describe dose, dosage and course of veterinary medicines used for common animal diseases	Describe the rationale of using veterinary medicines, describe clinical use of veterinary medicines in treatment of common animal diseases, describe dose, dosage and course of veterinary medicines used for common animal diseases and list contraindications of common veterinary medicines	Describe the rationale of using veterinary medicines, describe clinical use of veterinary medicines in treatment of common animal diseases, describe dose, dosage and course of veterinary medicines used for common animal diseases, list contraindications of common veterinary medicines and list important side effects and adverse effects of common veterinary medicines
5.3.1. Concept and principles of monitoring and evaluation described	Call		Define terms used in monitoring and evaluation, differentiate between monitoring and evaluation and explain the importance of monitoring and evaluation in pharmacy practice
P.O. B.	DX 710s		

F. O. Bo	WHO operational	List components of WHO operational package for assessing monitoring and evaluation of country pharmaceutical situations and explain each component of WHO operational package for assessing monitoring and evaluation of country pharmaceutical situations	pharmaceutical r situations, explain each component of WHO operational package for assessing monitoring and evaluation of country pharmaceutical situations and list performance indicators in monitoring and evaluation of different
5.3.3. Common drawbacks in monitoring and evaluation of medicines use correctly identifies	List factors hindering monitoring and evaluation of medicines use	List factors hindering monitoring and evaluation of medicines use and explain factors hindering monitoring and evaluation of medicines use	phermaceutical situations List factors hindering monitoring and evaluation of medicines use, explain factors hindering monitoring and evaluation of medicines use and identify measures to improve monitoring and evaluation of
5.3.4. Common indicators in medicines use described	evaluation of medicines use		medicines uses List indicators used in monitoring and evaluation of medicines use, explain application of each indicator in monitoring and evaluation of medicines use and describe tools used in monitoring and evaluation of medicines use



12.0 DESCRIPTION OF MODULES

12.1 Module Title: LEADERSHIP AND MANAGEMENT

Module Code: PST 06101

Number of Credits:

12

Sub-Enabling Outcomes

1.1.1 Describe the concept of participatory planning in provision of health care services.

P. O. BOX 7/09

- 1.1.2 Describe the role of pharmaceutical personnel in health care teams
- 1.1.3 Describe networking and negotiations techniques in delivery of health care services
- 3.1.1 Describe management concept and functions
- 3.1.2 Describe organization behaviour in relation to workplace productivity
- 3.1.3 Differentiate forms of leadership and management styles
- 3.1.4 Distinguish various structures of organisations
- 3.1.5 Describe leadership attributes in provision of pharmaceutical services Pre-requisite Module: None

Learning Context:

This module will be conducted through lectures, lecture discussion, group discussion, role plays, simulation, assignments and practical assignments.

Learning Materials:

Books, Journals, Writing Board, Flip Charts, OHP, Multimedia Projector, Audio visual

Key References:

Cole, G. A (2000) Management Theory and Practice, 6th Edition: Continuum Marquis, B. L and Huston, C. J (1996) Leadership Roles and Management Functions in Nursing – Theory and Application, 2nd Edition: Lippincott, Philadelphia.

Ndeki S.; Management of health services, CEDHA

Peterson A.M, Kelly N.W (2014); Leadership and management in pharmacy practice, 2nd edition, CRC press

MSH and WHO (1997) Managing Drug Supply, 2nd Edition. Kumarian Press

Module Code: PST 06102

Number of Credits:

8

Sub-Enabling Outcomes

- 1.3.1 Describe counselling and guidance techniques in promoting rational use of medicines.
- 1.3.2 Describe operating mechanisms of Care and Treatment Clinics (CTC)

1.3.3 Describe various methods to encourage adherence, compliance and concordance to treatment COUNCIL FOR TO

Pre-requisite Module: None

Learning Context:

This module will be conducted through lectures, lecture discussion, group discussion, role plays, simulation, assignments and practical assignments.

Learning Materials:

Books, Journals, Writing Board, Flip Charts, OHP, Multimedia Projector, Audio visual

Key References:

Agrawal, R (2006) Educational, Vocational Guidance and Counselling, New Delhi, Sipra Publication.

Bhatnagar A, and Gupta N, (1999) Guidance and Counselling, A theoretical approach (Ed) New Delhi, Vikash Publishing house.

Jones A. J (1951), Principles of Guidance and Pupil Personal work. New York. McGraw Hill

MoHSW (2005) National guidelines for the clinical management of HIV and AIDS, Dar es Salaam.

Hubley, J. (1993). Communicating Health. An action and guide to health and health promotion. 1st Edition.

12.3 Module Title: PHARMACEUTICAL PRODUCTION

Module Code: PST 06103

Number of Credits: 20

Sub-Enabling Outcomes

2.1.1 Describe procedures and processes of producing different dosage forms

- 2.1.2 Describe quality control and assurance procedures in pharmaceutical production
- 2.1.3 Describe waste management and disposal in pharmaceutical production
- 2.1.4 Describe premise and equipment maintenance procedures in pharmaceutical manufacturing facilities
- 2.2.1 Describe policies and legislations governing manufacturing of pharmaceuticals
- 2.2.2 Describe the importance of environmental impact assessment in establishing large scale manufacturing of pharmaceuticals
- 2.2.3 Explain statutory taxes and licencing procedures in establishing large scale manufacturing of pharmaceuticals
- 2.3.1 Describe the importance of Standard Operating Procedures (SoPs) in the production of pharmaceuticals
- 2.3.2 Describe the components of SoP
- 2.3.3 Carry out quality tests for raw materials and finished pharmaceutical products



Pre-requisite Module: None

Learning Context:

This module will be conducted through lectures, lecture discussion, group discussion, role plays, simulation, assignments and practical assignments

Learning Materials:

Books, Journals, Writing Board, Flip Charts, OHP, Multimedia Projector, Audio visual

Key References:

Polderman, J (1990) Introduction to Pharmaceutical Production: Novib, The Hague Lund, W. Editor (1994). The Pharmaceutical Codex, Principles and Practice of Pharmaceutics 12th Edition: The Pharmaceutical Press, London

Watson, D. G (1999) Pharmaceutical Analysis: A Textbook for Pharmacy Students and Pharmaceutical Chemists: Churchill Livingstone, Edinburgh.

Aulton M.E (ed) 1988 Pharmaceutics: The science of dosage form design. Churchill Livingstone, Edinburgh

Aulton M.E and Kevin M.G, Eds: (2013) Pharmaceutics the design and manufacture of medicines,4th Churchill edition Livingstone

Hugo and Russell (2011), Pharmaceutical Microbiology 8th Edition, willey-Blackwel publications

Liebsch, B et al (1988): Tanzania Pharmaceutical Handbook, Dar es Salaam University Press.

Gennaro, R. A. (ed) 1990 Remington's Pharmaceutical Sciences 18th edition: Mack Publishing Company, Easton, Pennsylvania 18042

Gennaro, R. A, et.al (eds) 1995 Remington: The Science and Practice of Pharmacy, Volume I & II, 19th edn: Mack Publishing Company, Easton, Pennsylvania 18042

Schmidt, O. (ed) 2000 Pharmaceutical Quality systems, Interpharm Press, Colorado.

Rawlins E.A, Editor: 1977 Bentley's Textbook of Pharmaceutics, 8th Ed. Baillie're Tindall. London Kamm, G. and Kohler, B. Editors: 1995 Manual for Decentralized Infusion Production, Infusion Unit Project Tanzania

Shayne C et al (2008), Pharmaceutical Manufacturing Handbook: Production and processes, John Wiley & Sons

Aulton M.F. (ed.) 2013 Dec.

Aulton M.E (ed) 2013 Pharmaceutics: The design and manufacture of Medicines, 4th Churchill Livingstone, Edinburgh

Gennaro, R. A, et.al (eds) 1990 Remington's Pharmaceutical Sciences 18th edn: Mack Publishing Company, Easton, Pennsylvania 18042



12.4 Module Title: HEALTH AND MEDICINES POLICY

Module Code: PST 06104

Number of Credits:

Sub-Enabling Outcomes

- 3.2.1 Describe national policies related to provision of health care services
- 3.2.2 Describe the primary health care concept and principles
- 3.2.3 Describe components of the National Health Policy

Pre-requisite Module: None

Learning Context:

This module will be conducted through lectures, lecture discussion, group discussion, role plays, simulation, assignments and practical assignments

Learning Materials:

Books, Journals, Writing Board, Flip Charts, OHP, Multimedia Projector, Audio visual

Key References:

MoHSW (2003), The National Health Policy, Dar es salaam
MoHSW (1991), The National Drugs Policy, Dar es salaam
Alma-Ata Declaration. http://www.who.int/publications/en/
Tanzania vision 2025. www.mof.go.tz/mofdocs/overarch/Vision2025
WHO, Geneva, Report of the International conference on Primary Health Care
Alma- Ata, USSR, 6-8 September1978

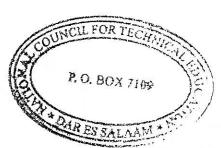
12.5 Module Title: HEALTH FINANCING

Module Code: PST 06105

Number of Credits: 12

Sub-Enabling Outcomes

- 3.4.1 Describe basic concept and principles of economics
- 3.4.2 Describe the concept and principles of health economics in delivery of pharmaceutical services.
- 3.4.3 Identify practices in health care delivery affecting the adoption of health economics principles
- 3.5.1 Describe health financing mechanisms
- 3.5.2 Describe public financing through Government subvention
- 3.5.3 Describe health insurance mechanisms



Pre-requisite Module: None

Learning Context:

This module will be conducted through lectures, lecture discussion, group discussion, role plays, simulation, assignments and practical assignments

Learning Materials:

Books, Journals, Writing Board, Flip Charts, OHP, Multimedia Projector, Audio visual

Key References:

William, J (1999) Principles of Health Economics for Developing Countries, 1st Edition: WBI of Development Studies, Washington.

Diane M. Dewar (2010) Essential of health economics

Gashaw Andargie (2008) Introduction to health Economics; Ethiopia Public Health Training Initiative

12.6 Module Title: PHARMACEUTICAL PUBLIC HEALTH

Module Code: PST 06206

Number of Credits:

Sub-Enabling Outcomes

- 1.2.1 Describe health promotion programmes related to pharmaceutical care and
- 1.2.2 Explain concepts and principles of pharmaceutical public health
- 1.2.3 Describe the concept of advocacy in relation to provision of pharmaceutical

Pre-requisite Module: None

Learning Context:

This module will be conducted through lectures, lecture discussion, group discussion, role plays, simulation, assignments and practical assignments

Learning Materials:

Books, Journals, Writing Board, Flip Charts, OHP, Multimedia Projector, Audio

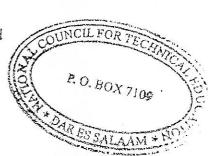
Key References:

Alma Ata, USSR. WHO, Geneva, 1978, Report of the international conference on

Health promotion journal 1.1 113-127, 1986

Promoting health in developing countries: A call for Action/WHO/HEP/90.1,WHO,

Health Service Executive (2011) Health promotion framework

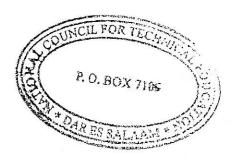


World Health Organization (1997) Jakarta declaration on leading Health Promotion into 21st century; Geneva: WHO

12.7 Module Title: ENTREPRENEURSHIP

Module Code: PST 06207

Number of Credits: 12



Sub-Enabling Outcomes

- 3.3.1 Describe the concept and principles of entrepreneurship
- 3.3.2 Distinguish between types of entrepreneurs and their key competencies
- 3.3.3 Explain challenges encountered by entrepreneurs in provision of pharmaceutical services
- 3.3.4 Describe concept and principles of marketing and sales of pharmaceuticals
- 3.3.5 Describe procedures and requirements for establishing marketing outlets for medicines and medical supplies

Pre-requisite Module: None

Learning Context:

This module will be conducted through lectures, lecture discussion, group discussion, role plays, simulation, assignments and practical assignments

Learning Materials:

Books, Journals, Writing Board, Flip Charts, OHP, Multimedia Projector, Audio visual

Key References:

Zimmerer, T. W. and N. M. Scarborough. Essentials of Entrepreneurship and Small Business Management; 5th Edition. Pearson Education International, New Jersey, 2008.

Charantimath, P. M (2006) Entrepreneurship Development Small Business Enterprises: Pearson Education, Delhi.

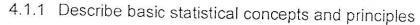
Buskirk, R. H (1994). The Entrepreneurs Handbook: Premier Entrepreneur Programs, Inc. Denver, Co.

Module Code: PST 06208

Number of Credits:

24

Sub-Enabling Outcomes



- 4.1.2 Summarize data using basic statistical principles to support decision making in provision of pharmaceutical services.
- 4.1.3 Establish trends in health care services
- 4.2.1 Describe basic concept and principles of research
- 4.2.2 Differentiate between various types of research
- 4.2.3 Describe procedures for conducting operational research

Pre-requisite Module: None

Learning Context:

This module will be conducted through lectures, lecture discussion, group discussion, role plays, simulation, assignments and practical assignments

Learning Materials:

Books, Journals, Writing Board, Flip Charts, OHP, Multimedia Projector, Audio visual

Key References:

Kothari C.R (1985); Research Methodology – Methods and techniques, 2nd edition, Wiley Eastern Limited New Delhi

Ranjit K (205); Research methodology – step by step guide for begginers, 2nd edition, Singapore, pearson education

Smith F.J (2010); Conducting your pharmacy research project, 2nd edition, Pharmaceutical Press, UK

Varkevisser, C. M, Pathmanathan, I and Brownlee, A (1991) Designing and Conducting Health Systems Research Projects, Vol. 2 Part I. IDRC, Ottawa

Polit, D. F and Beck, C. T (2004) Nursing Research – Principles and Methods, 7th Edition: Lippincott Williams & Wilkins, Philadelphia

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Sekaran, U. (2003) Research Methods for Business: A Skill-building Approach, New York, John Wiley.

Saunders, M., Lewis, P. and Thornhill, A. (2007) Research Methods for Business Students, Harlow, Prentice Hall.

Anderson, D.R., Sweeney, D.J., Williams, T.A., Freeman, J. & Shoesmith, E. (2007) Statistics for Business and Economics, Thomson Learning, London.



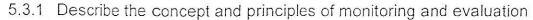
12.9 Module Title: MONITORING AND EVALUATION OF MEDICINES USE

Module Code: PST 06209

Number of Credits:

12

Sub-Enabling Outcomes



- 5.3.2 Describe components of WHO operational package for assessing monitoring and evaluation of country pharmaceutical situations
- 5.3.3 Identify common drawbacks in monitoring and evaluation of medicines use
- 5.3.4 Describe common indicators in medicines use
- 4.3.1 Explain the concept of pharmacovigillance
- 4.3.2 Describe the procedures for monitoring and detection of adverse drug reactions (ADRs)
- 4.3.3 Describe methods of controlling substandard and counterfeit medicines
- 4.3.4 Explain factors contributing to distribution of substandard and counterfeit medicines

Pre-requisite Module: None

Learning Context:

This module will be conducted through lectures, lecture discussion, group discussion, role plays, simulation, assignments and practical assignments

Learning Materials:

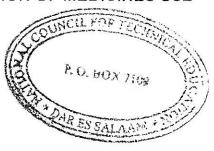
Books, Journals, Writing Board, Flip Charts, OHP, Multimedia Projector, Audio visual

Key References:

2011 The Global Fund to fight Against AIDS, Tuberculosis and Malaria, Monitoring and Evaluation Toolkit Fourth Edition.

WHO, Operational package for assessing monitoring and evaluating country pharmaceutical situations. Guide for coordinators and data collectors. (December 2007)

MSH and WHO, (1997) Managing Drug Supply, 2nd Edition. Kumarian Press



Module Title: BASIC PHARMACOTHERAPY

Module Code: PST 06106

Number of Credits:

Sub-Enabling Outcomes

5.1.1 Explain the principles and concept of pharmacotherapy

6

- 5.1.2 Apply knowledge of pharmacotherapy in management of common
- 5.1.3 Apply knowledge of pharmacotherapy in management of common non

Pre-requisite Module: None

Learning Context:

This module will be conducted through lectures, lecture discussion, group discussion, role plays, simulation, assignments and practical assignments

Learning Materials:

Books, Journals, Writing Board, Flip Charts, OHP, Multimedia Projector, Audio

Key References:

Pharmacotherapy: A Pathophysiologic Approach, 8th Edition, Joseph T. DiPiro, Robert L. Talbert, Gary C. Yee, Gary R. Matzke, Barbara G. Wells, L. Michael

Pharmacotherapy Casebook: A Patient-Focused Approach by Schwinghammer, Julia M. Koehler Terry L.

P.O. BOX 7100

MSH and WHO, (1997) Managing Drug Supply, 2nd Edition. Kumarian Press Basic Principles of Pharmacotherapy by Mohammad H. Farjoo.

Module Title: BASIC VETERINARY PHARMACOLOGY

Module Code: PST 06107

Number of Credits:

Sub-Enabling Outcomes

- 5.2.1 Describe principles and concept of veterinary medicine
- 5.2.2 Classify veterinary medicines according to pharmacological activities
- 5.2.3 Apply knowledge of pharmacology in treatment of common veterinary

Pre-requisite Module: None

Learning Context:

This module will be conducted through lectures, lecture discussion, group discussion, role plays, simulation, assignments and practical assignments

Learning Materials:

Books, Journals, Writing Board, Flip Charts, OHP, Multimedia Projector, Audio visual

Key References:

Veterinary Pharmacology and Therapeutics (2009); 9th Edition by Jim E. Riviere , Mark G. Papich

Handbook of Veterinary Pharmacology (2008); Walter H. Hsu

