Ministry of Education

Test Blueprint for National Exit Examination to be held in 2015 E.C

Band: 3

Program: - Bachelor of Science Degree in Pharmacy

Complied By:

1. **Minyahil Alebachew Woldu (Addis Ababa University)**
2. **Belachew Boranto (Arbaminch University)**

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Addis Ababa Ethiopia

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1 Introduction

Assessment plays a major role in the medical school curriculum by providing a way to monitor student progress toward the learning outcomes that we expect them to achieve. To ensure that assessments are consistent with course objectives and address truly important learning outcomes in a balanced manner, assessments must be developed according to a well-thought-out plan. Constructing a blueprint for assessment is an important approach evolving today and being emphasized to assess medical students including that in Pharmacy. Like any other education field, a Pharmacy educator is supposed to assess the grooming of Pharmacy professionals and so assessment is of utmost importance and interpretative of the learning process. In our system, written examinations are a useful tool to judge students' knowledge, skill, and attitude. Hence, the items in the question paper must match the course and a proportional weightage should be given to each competency of the curriculum concerning its domain as per clinical relevance. Hence, course content and learning objectives will guide the development of the blueprint and the test blueprint will be a guide for the assessments. The Ministry of Education of Ethiopia has, therefore, planned to develop the test blueprint for the exit exam that is going to be prescribed for assessing all undergraduate program students (public and private), starting from the 2022/2023 academic year onwards.

Test preparation is not an easy task; it requires careful planning and guideline to make the task simple. A carefully planned test construction contributes to improving the overall quality of the test in terms of its content validity, difficulty level, discrimination power, and test reliability. To have a tool of such quality, preparation of an exam blueprint is mandatory.

Creating a test blueprint is a tool for the educator that ensures that test content is mapped carefully against learning objectives to produce a valid examination. A harmony will be established among the material delivered during teaching sessions or competencies required to be achieved by the student and the questions that appear in the test. Creating a test blueprint will help to plan questions to be included in examinations and ensures that it adequately assesses the learning objectives of the course. It also helps in identifying areas where the question pool may be lacking.

A comprehensive blueprint, therefore, serves as a reference framework for the test constructor to prepare the test. Test blueprints can be used to demonstrate to the students, the topics of value and serve as a study guide for them. Furthermore, it will serve to reduce two

major validity threats associated with written examinations – construct under-representation, that is, no balanced representation of the curriculum, and construct- irrelevant variance, for example, items that are too easy or too hard.

Keeping this in mind, the team has prepared this test blueprint document to help the test developers or content specialists in their process of valid and reliable test construction. The major points considered in the process of preparing this blueprint guideline were the core competencies that have been already identified for the themes of courses, the course contents, course credit hours, and the learning outcomes with their corresponding levels of achievement by learning domains.

In line with these, the number of test items that should adequately assess the performance of students in all the content topics will be determined through discussion with the content specialists who construct the blueprint and test for their corresponding study program. Therefore, the main purpose of this document is to give direction on how to develop a blueprint for content specialists so that they can develop a test blueprint for their respective programs.

2 Objective/ Significance of Test Blueprint Preparation

2.1 The objective of the Test Blueprint Document

Test blueprint preparation is generally opted to assist the preparation of a test that is representative, broadly sampled, and consists of the complete knowledge domain expected of Ethiopian higher education students upon completion of their study program.

The specific objectives of the test blueprint are to:

- Facilitate the construction of representative and balanced test items for the selected courses following the competencies identified.
- Guide test developers or writers to write or set appropriate test items.

2.2 Significance of the Test Blueprint Document

It is important to set competency areas of the subject matter (program) to measure how much graduates are acquired with skills, knowledge, and attitudes. A test blueprint is a three-dimensional chart that shows the placement of each question in respect of the objective and the content area that it tests. The following shows us the significance of the test blueprint;

- Test blueprint used for examination contains the strategy of the exam by an educational institution;
- A test blueprint will help us plan which questions to include in your exam and ensure that it adequately assesses the learning objectives of the course; and
- It defines the knowledge, skills, and attitude you want to assess and will enable you to build purpose-driven, successful assessments.\

3 Expected Profiles of Graduates

It is envisaged that pharmacy graduates who have completed the Bachelor Pharmacy degree will be able to apply his/her knowledge, skills, and attitudes as follows:

Core graduate competencies

- Organize and control the manufacturing, compounding, and packaging of pharmaceutical products;
- Organize the selection, procurement, storage, and distribution of pharmaceutical materials and products
- Provide Pharmaceutical Care to ensure the optimal use of medicines by the patient;
- Dispense medicine with appropriate patient counseling;
- Provide education and information on health care and medicines;
- Promote community health and provide related information and advice;
- Demonstrate a high level of professional ethics to satisfy the pharmaceutical needs of society.
- Maintain and expand knowledge through self-directed learning.
- Be able to work as a member of the health team.
- Possess the necessary background to pursue further advanced study in pharmaceutical sciences.
- Research to ensure the optimal use of medicines.

After successful completion of the training, the graduates of the Pharmacy program should be equipped with the cognitive/knowledge, affective/attitude, and psychomotor/skills needed for **the following** professional competencies.

3.1.1 Knowledge

- Possess the necessary background to pursue further advanced study in pharmaceutical sciences

- Institute and promote safety, quality control, and quality assurance in their allowed work area
- Provide education and information on health care and medicines
- Promote community health and provide related information and advice
- Demonstrate a high level of professional ethics to satisfy the pharmaceutical needs of the society
- Maintain and expand knowledge through self-directed learning
- Use his/her critical thinking to improve the pharmacy working environment
- Familiarize him/her with the latest scientific findings to improve the quality of services rendered to the society
- Familiarize him/her with the latest scientific findings to improve the quality of services rendered to the society
- Maintain and expand knowledge through self-directed learning
- Participate in research to ensure the optimal use of medicines
- Familiarity with the latest laws, directives, and guidelines governing the pharmaceutical sector

3.1.2 Skill

- Provide Pharmaceutical Care and Dispense and ensure the optimal use of medicines by the patient
- Communicate effectively both verbally and in writing
- Collect, document, retrieve and interpret data related to all their activities clearly and safely
- Organize and control the manufacturing, compounding, and packaging of pharmaceutical products
- Monitor and maintain proper functioning of necessary equipment/reagents
- Develop and modify laboratory procedures
- Prepare educational materials to promote the rational use of medicines and medical devices
- Screen for drug abuse and refer patients to appropriate care center
- Communicate effectively both verbally and in writing
- Engage in policy, professional standards, and continuing professional development issues about the pharmacy profession
- Store and use laboratory supplies and dispose of expired drugs safely according to the rules and regulations
- Develop and modify laboratory procedures
- Organize the selection, procurement, storage, and distribution of pharmaceutical materials and products
- Plan drugs and equipment logistic procurement, evaluation, setup, and auditing

- Monitor the inventory in storage, work, and laboratory area
- Provide professional services, leadership, and quality assurance in work areas
- Demonstrate leadership and management skills

3.1.3 Attitude

- Advocate the proper use of necessary materials by screening
- Recognize, adhere to, and promote established safety rules
- Respectful and compassionate to patients, their relatives, and other professionals
- Be able to work as a member of the health team
- Advocate the proper use of necessary materials by screening
- Recognize, adhere to, and promote established safety rules
- Advocate the proper use of necessary materials by screening
- Maintain the pharmacy's ethical code of conduct standards
- Contribute to stewardship of their profession
- Recognize, adhere to, and promote established safety rules
- Pursue graduate training in pharmacy and other health-related disciplines
- Participate in policy, professional standards, and continuing professional development issues about the pharmacy profession
- Respectful and compassionate to patients, their relatives, and other professionals
- Maintain the pharmacy's ethical code of conduct standards
- Recognize, adhere to, and promote established safety rules
- Institute and promote safety, quality control, and quality assurance in their allowed work area
- Participate in policy, professional standards, and continuing professional development issues about the pharmacy profession
- Pursue graduate training in pharmacy and other health-related disciplines

4 The objective of the Program

4.1 General of B.Pharm Program

The general objective of the B.Pharm Program is to train highly qualified pharmacists who fulfill the essential, minimum common expectations of healthcare systems worldwide while fulfilling local needs.

Graduates would be expected to have the required knowledge, skill, attitude, and behavior to support the health care system and to respond to patient needs working in hospital and community pharmacies; drug manufacturing, import, and wholesale companies; public health services; academic institutions; pharmaceutical research; drug regulatory body and quality control organizations.

4.2 Specific Objectives

The specific objective of the B.Pharm Program are:-

- To train manpower that is more patient-oriented while still having a broad pharmaceutical knowledge to be able to easily adapt to working in any of the settings in the country's pharmaceutical sector.
- To provide practice-based training so that future pharmacists acquire problem-solving skills.
- To facilitate and assist in the transfer and adaptation of pharmaceutical knowledge

5 Themes and courses to be included in the exit exam

Table 1: themes and course included in the exit exam

S. No	List of Themes	List of courses	Course credit	
			ECTS	Cr.hrs
1	**Pharmaceutical care (35%)**	Integrated Pharmacotherapeutics I-IV	28	16
		Internal Medicine clerkship	7	4
		Pediatrics clerkship	7	4
		Ambulatory clerkship	7	4
		Total	**49**	**28**
2	**Pharmaceutical Sciences and technology (42.50%)**	Pharmacology I and II	14	8
		Pharmaceutical analysis I and II	14	8
		Integrated physical pharmacy and pharmaceutics-I and II[#]	18	10
		Pharmacognosy	7	4
		Industrial Pharmacy	7	4
		Total	**60**	**34**
3	**Pharmaceutical Supply Management (6.25%)**	Drug Supply management	5	3
		Medical supplies, equipment, and reagents	3	2
		Total	**8**	**5**
4	**Pharmacy Law and Professional Ethics (2.5%)**	Pharmacy law and ethics	3	2
		Total	**3**	**2**
5	**Dispensing and Drug Information Services (13.75%)**	Drug informatics	3	2
		Pharmacy Practice	12	7
		Communication skills for pharmacists	3	2
		Total	**18**	**11**

2. Share the Themes/Courses/Items in Percentage (%)

Table 2: Share of the themes/courses/items and CAPs in percentage (%)

Themes and share of the themes in %	Course Name	Credit hour	Weight of course or proportion= course Cr.Hr ÷ total theme Cr. Hr	Number of test items from each course= wt, of course, * theme %	Cognitive						Affective	Psychomotor	Tot
					Remember	Understand	Apply	Analyze	Evaluate	Create			
Pharmaceutical care (35%)	Integrated Pharmacotherapeutics I-IV	16	0.57	20	4.5	4.5	1.5	4	2	0.5	1	2	20
	Internal Medicine clerkship	4	0.14	5	1.25	1	0.5	0.5	0.25	0.5	0.5	0.5	5
	Pediatrics clerkship	4	0.14	5	1.25	1	0.5	0.5	0.25	0.5	0.5	0.5	5
	Ambulatory clerkship	4	0.14	5	1.25	1	0.5	0.5	0.25	0.5	0.5	0.5	5
	Total	**28**											**35**
Pharmaceutical Sciences and technology (42.50%)	Pharmacology I and II	8	0.24	10	2	1.5	1	2	0.5	1	0.5	1.5	10
	Pharmaceutical analysis I and II	8	0.24	10	2	1.5	1	2	0.5	1	0.5	1.5	10
	Integrated physical pharmacy and pharmaceutics-I and II[#]	10	0.29	12.5	3	2.5	1.5	2	0.5	1	0.5	1.5	12.5
	Pharmacognosy	4	0.12	5	1	1	0.5	0.5	0.25	0.5	0.25	1	5
	Industrial Pharmacy	4	0.12	5	1	1	0.5	0.5	0.25	0.5	0.25	1	5
	Total	**34**											**42.5**
Pharmaceutical Supply Management (6.25%)	Drug Supply management	3	0.6	3.75	0.5	0.5	0.5	0.5	0.25	0.75	0.25	0.5	3.75
	Medical supplies, equipment, and reagents	2	0.4	2.5	0.5	0.5	0.25	0.25	0.25	0.25	0.25	0.25	2.5
	Total	**5**											**6.25**
Pharmacy Law and Professional Ethics (2.5%)	Pharmacy law and ethics	2	1	2.5	0.5	0.5	0.25	0.25	0.25	0.25	0.5		2.5
	Total	**2**											**2.5**
Dispensing and Drug Information Services (13.75%)	Drug informatics	2	0.18	2.5	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.5	2.5
	Pharmacy Practice	7	0.64	8.75	2	2	0.5	0.25	0.25	0.25	1.5	2	8.75
	Communication skills for pharmacists	2	0.18	2.5	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.5	2.5
	Total	**11**											**13.75**
Total for the program		**80**											**100.0**

3. Test blueprint Table (Table of Specification)

Table 3: Share of Competencies (KSA) per Courses

Themes and share of the themes in %	List of Courses	Cr. Hr	General objective	Specific objectives or learning outcomes	Learning outcomes								Share of course in %
					Cognitive						Affective	Psychomotor	
					Remembering	Understanding	Application	Analysis	Evaluation	Creation/ Synthesis			
Pharmaceutical care (35%)	Integrated Pharmacotherapeutics I-IV	16	Apply and integrate foundational knowledge (i.e., pharmaceutical, social/behavioral/administrative, and clinical sciences) throughout the patient care process.	• Explain the etiology, pathophysiology, clinical presentation, and diagnosis of each disease state • Set goals of treatment and select treatment options for the management of each disease state • Formulate dose recommendations and pharmacokinetic considerations for individual patient management • Monitor clinically significant adverse drug reactions and drug interactions • Evaluate therapeutic outcomes for effectiveness, safety, and patient adherence • Develop and exercise pharmaceutical care planning for managing a specific patient's condition • Provide patient medication counseling and drug information	4.5	4.5	1.5	4	2	0.5	1	2	20
	Internal Medicine clerkship	4	To train students to provide pharmaceutical care to admitted patients in health setups	• Processing prescriptions/medication orders • Identifying and resolving drug-related problems through patient information retrieval and assessment • Development of patient-specific Pharmacotherapy care plans • Monitor drug therapy • Communicate with patients and other healthcare providers • Provide patient education and training • Demonstrate drug and literature information retrieval, evaluation, application, and related verbal and written communication skills • Develop a practical and functional understanding of pharmacy services/systems in different practice settings, including related patient safety and management responsibilities	1.25	1	.5	. 5	.25	.5	.5	.5	5
	Pediatrics clerkship	4	To train students to provide pharmaceutical care to pediatric patients	• To provide the student with an understanding of pediatric patient care in the clinical setting. • To develop a knowledge base of common pediatric disease states and their therapy. • To learn to apply therapeutic and pharmacokinetic	1.25	1	.5						

				principles to pediatric patients. • To develop an appreciation of the pharmacist's role in monitoring drug therapy in pediatric patients. • To be able to evaluate the appropriateness of drug therapy in pediatric illnesses. • To be able to interact with the pediatric care system as a participant. • To develop an understanding of drug dosage and formulation problems unique to pediatric drug therapy				.5	.25	.5	.5	.5	5
	Ambulatory clerkship	4	To develop the essential skills necessary to provide patient-specific care to patients in the ambulatory care	• Evaluate pathophysiology, clinical presentation, treatment goals, drug therapy, monitoring parameters, outcome measures, prognosis, and long-term management • Identify drug-related problems; formulate and implement patient-specific, evidence-based patient care plans, and follow up • Succinctly present oral and written outlines of patient work-ups. • Synthesize succinct, evidence-based answers to drug information questions posed by patients or healthcare colleagues. • Evaluate patient understanding of provided information about medical conditions, drug therapy, outcome goals, potential side effects	1.25	1	.5	.5	.25	.5	.5	.5	5
Pharmaceutical Sciences and technology (42.5%)	Pharmacology I and II	8	To impart fundamental knowledge, and skills on the pharmacokinetics, pharmacodynamics, therapeutic use, and toxic effects drugs of both therapeutic benefit or toxic/poisoning agents.	• Understand the pharmacokinetics, pharmacodynamics, therapeutic use, and toxic effects of drugs • Describe general toxicology principles and clinical management practice • To describe drugs acting on various organs and systems such as the cardiovascular system, renal system, nervous system, respiratory system, endocrine system, gastrointestinal system, etc. • Explain autacoids and drug therapy of inflammation. • Explain drugs used for the treatment of Infectious Diseases and Neoplastic Diseases	2	2	1	2	.5	1.5	.5	.5	10
	Pharmaceutical analysis I and II	8	To acquire a mature understanding of the theory and application of modern analytical techniques for chemical analysis	• To understand the theory and application of modern analytical techniques for pharmaceutical analysis; • To select the analytical method of choice for a particular circumstance; • To gain a deeper understanding of the regulatory matters and quality assurance principles currently in practice for the manufacture and licensing of medicines;	2	1.5	1	2	0.5	1	0.5	1.5	10
	Integrated physical	10	To teach students the application of the	• Understand the different types of dosage forms, types of intermolecular interaction forces, the concepts of surface	3	2.5	1.5	2	0.5	1	0.5	1.5	12.5

	pharmacy and pharmaceutics-I and II[#]		knowledge of the physicochemical principles of pharmacy to the rational formulation, compounding, quality control, packaging, and storage of pharmaceutical dosage forms.	and interfacial tensions, • Understand adsorption at liquid and solid interfaces, • Understand the distribution law, • Understand the different types of containers, * explain packaging materials, storage conditions, and labeling requirements of pharmaceutical dosage forms; • Explain the methods of determination of viscosity and its pharmaceutical applications; *understand sedimentation in suspensions, interfacial property of suspended particles, and types of emulsions and methods to identify emulsion type, • Understand theories of emulsification and physical instabilities in emulsions, preservation of emulsions & rheology of emulsions; • Understand methods of extemporaneous compounding of emulsions, labeling, and storage conditions • Understand the rheologic property of suspensions, preparation methods, and labeling & storage conditions • Differentiate Newtonian and Non-newtonian systems; the thixotropic property of fluids; sedimentation in suspensions, interfacial property of suspended particles, the electric double layer, and DLVO theory • Define solubility and the different solubility expressions, flocculated and deflocculated suspensions,									
	Pharmacognosy	4	Demonstrates medicines derived from a natural source; and natural substances and their chemistry.	• Understand and demonstrate the source, chemical & biological nature of drugs and drug substances of natural origin; • Explain different forms of complementary & alternative medicines	1	1	0.5	0.5	0.25	0.5	0.25	1	5
	Industrial Pharmacy	4	To introduce the pertinent unit operations employed in the production of dosage forms.	• To equip the student with theoretical and practical aspects of manufacturing pharmaceuticals; • To teach about the necessary skills required for processing dosage forms at an industrial scale; • To familiarize students with the fundamentals of quality assurance of pharmaceuticals and current good manufacturing practices	1	1	0.5	0.5	0.25	0.5	0.25	1	5
Pharmaceutical Supply Management (6.25%)	Drug Supply management	3	To be able to ensure and manage the supply chains of pharmaceuticals (drugs, medical supplies, equipment, and reagents) in various healthcare settings.	• Describe the concept of essential drugs and the national drug policy including the core objectives and key strategies. • Discuss the importance of drug management in controlling costs and preventing morbidity and mortality. • Explain the basic concepts in public health services management • Explain the healthcare delivery system in Ethiopia	.5	.5	.5	.5	.25	.75	.25	.5	3.75

	Medical supplies, equipment, and reagents	2	To be able to ensure and manage the medical supplies, equipment, and reagents in various healthcare settings.	• Describe the different types of medical supplies, equipment, and reagents and their uses. • Describe the concept of medical supplies, equipment, and reagents including the core objectives and key strategies. • Discuss the importance of medical supplies, equipment, and reagents in controlling costs and preventing morbidity and mortality.	.5	0.5	0.25	0.25	0.25	0.25	0.25	0.25	2.5
Pharmacy Law and Professional Ethics (2.5%)	Pharmacy law and ethics	2	Explain the process of policy development and evaluation, Identify laws governing the practice of pharmacy, describe the ethical principles in pharmacy practice of Ethiopia, and identify standards and guidelines governing pharmacy practice in Ethiopia	• Define pharmaceutical jurisprudence and Professional Ethics • Discuss Laws Governing the practice of pharmacy • Describe the Pharmaceutical legal system • Describe Drug nomenclature and patents • Explain the requirements to practice pharmacy, and also to run health institutions involved in the use and dispensing of pharmaceuticals • Explain the Control of manufacture, import, export, wholesale, distribution, labeling and packaging, utilization, administration, and quality assurance of pharmaceuticals • Describe the Management and use of controlled substances, poisons, and radiopharmaceuticals • Identify prohibitions; legal procedures for offenses and penalties for violation of Pharmaceutical laws and regulations • Discuss the Code of ethics for pharmacists in Ethiopia	.5	.5	.25	.25	.25	.25	.5		2.5
Dispensing and Drug Information Services (13.75%)	Drug informatics	2	To provide pharmacy students with an overview of drug information resources used in the healthcare system.	• Rapidly locate and evaluate drug information sources • Systematically manage and communicate drug information • Apply drug information knowledge for the preparation and management of formularies, guidelines, and bulletins. • Provide drug information to health care professionals and patients on the rational use of drugs. • Compare and contrast online resources to printed resources. • Differentiate between primary, secondary, and tertiary literature.	.5	.25	.25	.25	.25	.25	.25	.5	2.5
	Pharmacy Practice	7	To provide an extended theoretical discussion on pharmacy practice in class and visit various pharmacy settings: community and hospital	• To describe and practice a broad range of pharmacy practice settings • To perform the basic functions and/or skills assigned in various practice settings • To describe the role and function of pharmacy professionals	2	2	.5	.25	.25	.25	1.5	2.	8.75

			pharmacies, the pharmaceutical industry, drug regulatory bodies, research institutes, drug supply and distribution agencies, and pharmacy associations.	• To demonstrate and understand pharmacy operations, Professional Activities, Roles, and Responsibilities • To conduct an educational program for the community									
	Communication skills for Pharmacists	2	*Introduce the basic concepts of communication, establishing the pharmacist-patient relationship, practical skills in communication with patients, collaborative working relationship with other he	• To identify the importance of communication skills in meeting pharmacists' patient care responsibilities. • To demonstrate competency in the use of interpersonal communication skills of listening, interviewing, providing feedback, and relationship development. • To apply appropriate communication strategies to address barriers and handle sensitive issues in interactions with patients and health care professionals. • To analyze the impact of elements of written, verbal, and e-communication on the practitioner image. • To collaborate with peers in developing effective interpersonal communication skills required of a pharmacist.	.5	.25	.25	.25	.25	.25	.25	.5	2.5

Key: In the cells/ boxes some numbers indicate the number of items that correspond to the levels of domains.

4. Share of Competencies (KSA) per Courses / Summery/

No	Themes and share of the themes in %	List of Courses	Cr. Hr	Share of Courses (%) [a]	Share of Competencies (in %)			Share of course in % [b]	Remarks
					Knowledge	Attitude	Skill		
1	**Pharmaceutical care (35%)**	Integrated Pharmacotherapeutics I-IV	16	57.13	17	1	2	20	
		Internal Medicine clerkship	4	14.29	4	0.5	0.5	5	
		Pediatrics clerkship	4	14.29	4	0.5	0.5	5	
		Ambulatory clerkship	4	14.29	4	0.5	0.5	5	
2	**Pharmaceutical Sciences and technology** (42.5%)	Pharmacology I and II	8	23.53		9	0.5	10	
		Pharmaceutical analysis I and II	8	23.53	8	0.5	1.5	10	
		Integrated physical pharmacy and pharmaceutics-I and II[#]	10	29.42	10.5	0.5	1.5	12.5	
		Pharmacognosy	4	11.76	3.75	0.25	1	5	
		Industrial Pharmacy	4	11.76	3.75	0.25	1	5	
3	**Pharmaceutical Supply Management (6.25%)**	Drug Supply management	3	60	3	0.25	0.5	3.75	
		Medical supplies, equipment, and reagents	2	40	2	0.25	0.25	2.5	
4	**Pharmacy Law and Professional Ethics (2.5%)**	Pharmacy law and ethics	2	100	2	0.5		2.5	
5	**Dispensing and Drug Information Services (13.75%)**	Drug informatics	2	18.18	1.75	0.25	0.5	2.5	
		Pharmacy Practice	7	63.64	5.25	1.5	2	8.75	
		Communication skills for Pharmacists	2	18.18	1.75	0.25	0.5	2.5	
Total aggregate			80		79.75	7.5	12.75	100	

Table 4: **Share of Competencies (KSA) per Courses**

a. Share of course out of the specific theme

b. Share of course the total theme

5. Conclusion

Exit examination can have a vital role in producing knowledgeable, skillful, and attitudinally matured graduates. The main idea behind an exit exam is the need to check whether students have attained the intended learning outcomes of the programs they have attended. Exit exams can offer several potential benefits if designed as a reliable measure of student learning. It contributes to preparing competent graduates as it can serve as a quality check for effectiveness. It also helps in improving academic programs' quality and effectiveness. Furthermore, it can create a platform for cooperation among academic programs at different universities to work jointly to improve the programs' quality.

In light of this, this document is produced to assist in the setting of the exit examinations for all programs, which are being delivered by the Ministry of Education. To meet the graduation profile, competency, and learning outcome, exit exam competency selection and identifying core course was done for 2015 EC graduating students. It will help you plan which questions to include in your exam and ensure that it adequately assesses the learning objectives of the course. A test blueprint is a great way to help you construct effective exams for your course. As a result, preparing a test blueprint is necessary to prepare fairly distributed items based on the above criteria.

Appendix

This document is compiled by:

- Minyahil Alebachew Woldu (Assistant Prof, Addis Ababa University, School of Pharmacy) minyahil.alebachew@aau.edu.et
- Belachew Boranto (MSc, Arbaminch University, School of Pharmacy) mr.yes2006@gmail.com