# Ministry of Education

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

## Band: 4

## Program: Doctor of Dental Medicine (DMD)

**Compiled By:**

**Dr.Dida Boru Liben (DMD, assistant professor in orthodontics @ Jimma University)**

**Writer**

**Dr.Melese Bizuayehu(DMD, lecturer @ University of Gondar)**

**Validator**

DRAFT

**February, 2023**

**Addis Ababa, Ethiopia**

## Table of contents

**Contents**

**Page**


**1. Introduction** 1

**2.2. Significance of the Test Blueprint document** 2

**3. Expected Profiles of Graduates** 3

- **Knowledge** 4
- **Skills** 4
- **Attitude** 5

**4. Objective of the program** 5

**5. Themes and courses to be included in the exit exam** 8

Table 1: themes and course included in the exit exam 8

**9. Conclusions** 16


DRAFT

# 1. Introduction

In order to improve the quality of graduates produced by higher learning institutions, Ethiopia's Ministry of Education has announced the implementation of an exit exam for all undergraduate program students (public and private) beginning with the 2022/2023 academic year. The exit exam was designed to determine whether students had acquired the necessary knowledge, skills, and attitudes. This requires determining competency areas for a specific program that has already been completed. It is necessary to plan the development of tests based on the prepared competency areas.

The Ministry of Education of Ethiopia has announced the implementation of exit exam for all undergraduate program students (public and private), beginning with the 2022/2023 academic year, in order to improve the quality of graduates produced by higher learning institutions. The exit exam aimed at checking whether students have acquired the required knowledge, skills and attitudes or not. To implement this, it requires determining competency areas for a specific program, which is already completed. Based on the competency areas prepared, it needs to plan the construction of tests.

The planning of a test is the first and most important step in the development of an achievement test. An achievement test necessitates very systematic and careful planning, as good planning is a sign of success. Tests are tools that provide scores that measure the level of student learning and the learning outcomes of study programs. The development of valid and reliable tests is required to achieve valid and reliable measurement of student learning and program learning outcomes. The test should be able to assess student performance across all dimensions of knowledge, skill, and attitude.

The well-planned test construction contributes to the test's overall quality in terms of test content validity, difficulty level, discrimination power, and test reliability. Test preparation is a difficult task that requires careful planning and guidelines to make it simple. The preparation of a test blue print is required for test construction. A test blueprint is a detailed plan that explains how to create a test. The term refers to an assessment map or specification that ensures that all aspects of the curriculum and educational domains are covered by assessment programs over a specified time period. It assists curriculum developers/test developers in matching various competencies with course content and the appropriate mode of assessment.

In general, a test blueprint will assist in ensuring that tests:

1) Assess the achievement of the course's instructional objectives;

2) Reflect key course goals, objectives, and the material learned or covered during the instruction period; and

3) Include the appropriate item formats in addition to the knowledge and skills being assessed.

Keeping this in mind, the team created this test blueprint document to assist test developers or content specialists in their process of creating valid and reliable tests. The core competencies that have already been 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 were the major points considered in the process of preparing this test blue print guideline. In accordance with these, the number of test items that should adequately assess students' performance in all content topics will be determined through consultation with the content specialists who create the blueprint and test for their corresponding study program.

Therefore, the main purpose of this manual is to give direction on how to develop blueprint for content specialists so that they can develop a test blueprint for their respective program

DRAFT

## 2. Objective/ Significance of Test Blueprint Preparation

### 2.1. Objective of test blueprint document

Test blueprint preparation is commonly used to aid in the preparation of a test that is representative, broadly sampled, and includes the entire knowledge domain expected of Ethiopian higher education students upon completion of their study program.

The specific objectives of test blueprint are to:

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

### 2.2. Significance of the Test Blueprint document

Test blueprint can be a guideline to prepare the exit exam items with regard to the identified core competences for the selected courses. It enables the exit exam preparing committee to be smart and assist them while preparing the items. Moreover, test blueprint maintains the consistency of the questions over different universities sticking on the same competences and objectives. In general, test blueprint makes clear where, how and what questions are prepared to evaluate the graduating class which most likely can reduce the confusion of the exit exam.

## 3. Expected Profiles of Graduates

In general, Dental medicine graduates are expected to have basic understanding of the structural and functional relations of teeth and oral cavity in normal as well as diseased state. In addition, they should have necessary knowledge about various clinical, laboratory and radiologic features of oral diseases, interpret their results, make diagnosis and manage common dental health problems at primary care level. Therefore, dental graduates should be able to make use of different diagnostic modalities, their rational interpretation and be familiar with their adverse effect; provide oral health education for

DRAFT

individuals and families in the community and institutions; interact with variety of health professional to coordinate dental service and to perform follow up evaluation of patients. The graduate/ professional profile of Dental medicine includes ability to:

- Make use of different diagnostic modalities, their rational interpretation and be familiar with their adverse effect;
- Provide oral health education for individuals and families in the community and institutions;
- Interact with variety of health professional to coordinate dental service and to perform follow up evaluation of patients;
- Have knowledge of socio- psychological , cultural , and economic factors affecting health;
- Provide emergency management of common dental problems; use effective communication skills to support health team
- collaborate with governmental and nongovernmental organizations to provide healthful environment and work towards empowering the community / public; have good knowledge of national policy on health
- Have basic management skill in the area of human and material resource related to health care deliver
- Promote and be engaged in different inter-disciplinary activities; organize referrals for patient who need specialized services; conduct essential and operational researches on common oral health problems; abide by medical ethics , medico legal matters and fulfil social and professional obligation

**After successful completion of the training, the graduates are expected to gain the following competence: -**

❖ **Knowledge**

- Describe application of biomedical science knowledge in the delivery of patient care
- Understand legal and regulatory concepts related to the provision and/or support of oral health care services
- Identify instruments used for dental treatments
- Interpretation of radiographs in various abnormalities of teeth, bones and

DRAFT

associated structures

- Recognize features of emergency conditions that can occur on dental chair
- Describe principles of management of oral and fascial space infections;
- Identify aetiologies, types and features of oral lesions and pathologies and their management
- Distinguish between features of jaw deformities
- Identify basic principles of oral implantology
- Describe classification and use of local anaesthetic agents and their complications
- Describe aetiology, classification and treatments of pulpal diseases and dental caries.
- Identify clinical and radiographic features of dental and maxillofacial bone fractures and principles of their management
- Classify missing dentition and describe principles of replacement with removable and fixed prostheses.
- Identify aetiology, classification and treatment of periodontal diseases
- identify all oral health problems affecting community and outline the solution
- identify dental diseases affecting children and their managements

❖ **Skills**

- Elicits the dental and medical history of patient systematically
- Examine any patient with oral and maxillofacial problems
- Carryout initial assessment of trauma patient and give first aid
- Uses dental instruments competently
- Provide oral health care within the scope of general dentistry to patients including;
- Give Local anesthesia;
- Prepare abutments, take impressions prepare models and construct partial dentures,
- Take intra oral radiographs
- Perform dental cavities preparation, pulp capping procedures and root canal treatment of anterior teeth
- preparing cavities for filling with different dental materials
- Perform closed tooth extractions under general and local anaesthesia

DRAFT

- Carry out closed treatment of dental, dentoalveolar and jaw fractures
- Perform orthodontic assessments and do simple orthodontic treatment
- Diagnose periodontal diseases and Perform scaling and root planning
- Assess and manage the treatment of patients with special needs

❖ **Attitude**

- Keep all obtained information about the patient and his illness safely and maintain confidentiality
- Abide to the principles of ethical decision making and professional responsibility
- Appreciates the individuality of the patient and deals with him/her with due respect and consideration, as a person
- Know how to install a positive attitude in children and patients with special needs towards oral Health
- Protects the privacy of the patient when dealing with him/her;
- Appreciates the importance of functioning as a member of a team and accords due respect to all members of the team
- Appreciates the importance of utilizing resources responsibly;
- Have a rational attitude about private and/or public matters;
- Acknowledge the virtue of endless learning and hard work.
- Recognize the importance of preventive dentistry and community service.

# 4. Objective of the program

## 4.1. General objectives

- Understand the core concepts of preclinical basic sciences and their application in clinical practices
- Understand he anatomical basis of various dental treatment procedures and physiologic aging process in the dental tissue
- Understand physical and chemical properties of dental materials, knowledge of biomechanical requirements of particular restorative procedure. laying down standards or specifications of various materials to guide to manufactures as well as to help professionals. search for newer and better materials which may answer our requirements with greater satisfaction.

DRAFT

- Describe the ethical foundations of consent in both clinical practice and research
- Identify instruments used for dental treatments
- Understand the different types of pathological processes, that involve the oral cavity.
- The students should have the knowledge to carry out orthodontic assessments and recognize and describe developing & manifest malocclusions. Have skill to do simple orthodontic treatment.
- Make the students have the knowledge of dental radiology and have skill of taking intra oral xray.
- To make the student know how to instil a positive attitude in children towards oral Health and understand the principles of prevention & preventive dentistry right from birth to adolescence
- The student must have the knowledge of causes for children requiring emergency care.
- To make the student quire the skill to perform dental scaling, diagnostic tests of periodontal diseases; to use the instruments for periodontal therapy and maintenance of these instruments
- To equip the students with the knowledge of periodontal splints & Pharmaco–therapy for periodontal disease.
- It has an objective to make students learn how to deliveries and also to make them know how to perform dental cavities preparation from class I to class V, pulp capping procedures
- RCT of anterior teeth carry out composite restorations and Make the students learn to have knowledge & skill how to use the low & high speed s hand piece instruments to do clinical operative dentistry.
- To allocate the students under dental clinical practice the skill of preparing cavities for filling with different dental materials, restore esthetic of patients.
- The graduate must develop the knowledge about partial dental prostheses.
- To assess the need for replacing damaged and missing teeth with fixed prostheses.
- To undertake the necessary measures to prevent dental disease as related to fixed Prosthodontics.

DRAFT

- Make the student to know how to examine any patient with an oral surgical problem and tooth extractions under general and local anesthesia and know what these anesthetics are it is also the objective of these course to make the students know the instuments of oral surgery.
- To pass to the students knowledge what Endodontics is and equip them with a basic skills at this level to start simple basic root canal treatments
- Understand different classification of oral lesions both malignant and benign
- Understand the chemical components of local anesthesia and its indication and contraindication

## 4.2. Specific objectives

**The specific objectives of this academic program are to:**

- ❖ Understand anatomies different types of human dentition
- ❖ Make the student able to work with responsibilities to solve the main oral and maxillo-facial problems that affect the community.
- ❖ Understand different classification of oral pathological lesions
- ❖ Characterize the typical features of oral carcinoma
- ❖ keep confidential issues of the patient secret
- ❖ Understand the legal basis of parental care and control of children.
- ❖ Understand the causes of children requiring emergency care
- ❖ Apply preventive and corrective procedures in paediatrics patients
- ❖ Apply the knowledge of oral pathology for differential diagnosis
- ❖ Describe application of biomedical science knowledge in the delivery of patient care
- ❖ Manage specific cases with fixed prostheses.
- ❖ Apply knowledge of dental anatomy for clinical practices
- ❖ Apply knowledge of Endodontics to do simple basic root canal treatments
- ❖ Apply appropriate rotary instruments for dental cavity preparation

DRAFT

- Develop the knowledge about partial dental prostheses
- Perform dental cavities preparation from class I to class V, pulp capping procedures RCT of anterior teeth carry out composite restorations
- Apply hot and cold test to diagnose dental caries
- Perform periodontal splints & Pharmaco–therapy for periodontal disease.
- perform dental scaling with both manual and ultrasonic scalers
- Carryout initial assessment of trauma patient and give first aid
- Uses dental instruments competently
- Provide oral health care within the scope of general dentistry to patients including;
- Give Local anesthesia;
- Prepare abutments, take impressions prepare models and construct partial dentures,
- Understand the partial dental manufacturing procedures and fixation
- to perform dental cavities preparation from class I to class V, pulp capping procedures RCT of anterior teeth carry out composite restorations
- Enable students to acquire knowledge and techniques of minor surgical procedures like tooth extraction
- Apply knowledge of dental radiology and have skill of taking intra oral xray.
- Perform closed tooth extractions under general and local anaesthesia
- Carry out closed treatment of dental, dentoalveolar and jaw fractures
- Perform orthodontic assessments and do simple orthodontic treatment
- Evaluate orthodontic developmental problems

DRAFT

## 5. Themes and courses to be included in the exit exam

Table 1: themes and course included in the exit exam

| S.n | Themes | Lists of selected | Cr. | Remarks |
|---|---|---|---|---|

| **o** | | **courses** | **hrs** | |
|---|---|---|---|---|
| 1 | Preclinical basic sciences | Dental anatomy | 3 | |
| | | Oral pathology | 3 | |
| | | Medical ethics | 1 | |
| | | Dental materials | 3 | |
| 2 | Clinical sciences | Operative dentistry | 10 | |
| | | Oral & Maxillofacial Surgery | 12 | |
| | | Periodontics | 6 | |
| | | Endodontics | 6 | |
| | | Prosthodontics | 7 | |
| | | Pedodontics | 7 | |
| | | Orthodontics | 7 | |
| | | Dental radiology | 2 | |
| | | Oral medicine | 4 | |
| | | Local anesthesia | 2 | |
| Total Credit Hour | | | 73 | |

DRAFT

## 6. Share of the Themes/Courses/Items in Percentage (%)

Table 2 Share of the Themes/Courses/Items in Percentage

| Themes | Course Name | Credit hour | Weight of course or proportion | Number of test items from each course | **Cognitive** | | | | | | **Affective** | **Psychomotor** | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Remember | Understa- | Apply | Analyze | Evaluate | Create | | | |
| Preclinical basic sciences 13.7% | Dental anatomy | 3 | 3/10=0.3 | 0.3*13.7 = 4 | 1 | 1 | 2 | - | - | - | - | - | 4 |
| | Oral pathology | 3 | 3/10=0.3 | 0.3*13.7 = 4 | - | 1 | 2 | 1 | | - | - | - | 4 |
| | Medical ethics | 1 | 1/10=0.1 | 0.1*13.7= 1 | - | - | - | - | - | - | 1 | - | 1 |
| | Dental materials | 3 | 3/10=0.3 | 0.3*13.7= 4 | - | 1 | 2 | - | - | - | - | 1 | 4 |
| | Theme one total credit | **10** | | | - | | | | | | | | |
| Clinical sciences 86.3% | Operative dentistry | 10 | 10/63 = 0.159 | 0.159*86.3= 14 | - | 6 | 2 | 2 | - | - | - | 4 | 14 |
| | Oral and maxillofacial surgery | 12 | 12/63 = 0.19 | 0.19*86.3 = 16 | - | 4 | 2 | 2 | - | - | - | 8 | 16 |
| | Periodontics | 6 | 6/63 = 0.095 | 0.095*86.3 = 8 | - | 2 | 2 | - | - | - | - | 4 | 8 |
| | Endodontics | 6 | 6/63 = 0.095 | 0.095*86.3 = 8 | - | 1 | 3 | - | - | - | - | 4 | 8 |
| | Prosthodontics | 7 | 7/63 =0.111 | 0.111*86.3 =10 | - | 2 | 1 | 1 | - | - | - | 6 | 10 |
| | Pedodontics | 7 | 7/63 =0.111 | 0.111*86.3 =10 | - | 3 | 1 | - | - | - | 4 | 2 | 10 |
| | Orthodontics | 7 | 7/63 =0.111 | 0.111*86.3 =10 | - | 2 | 3 | - | 3 | - | - | 2 | 10 |
| | Dental radiology | 2 | 2/63 =0.03 | 0.03*86.3 =3 | - | 1 | 1 | - | - | - | - | 1 | 3 |
| | Oral medicine | 4 | 4/63 =0.06 | 0.06* 86.3 =5 | - | 2 | 1 | 2 | - | - | - | - | 5 |
| | Local anesthesia | 2 | 2/63 =0.03 | 0.03* 86.3 =3 | | 1 | 1 | | | | | 1 | 3 |
| | Theme two total credit | **63** | | | | | | | | | | | |
| Total for the program | | **73** | | | 1 | 27 | 23 | 8 | 3 | 0 | 5 | 33 | 100 |

DRAFT

## 7. Test blueprint Table (Table of Specification )

Table 3: Test Blue-Print table

| Themes | Name of Courses | Credit hour | Share of the themes in % | General Objective/ Expected Competencies to be measured | Specific Objectives/ Learning outcomes | Learning outcomes | | | | | | | | Total No. of items |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Cognitive | | | | | | Affective | Psychomotor | |
| | | | | | | Remembering | Understanding | Appling | Analysis | Evaluation | Creation/ | | | |
| Preclinical basic sciences | Dental anatomy | 3 | $\frac{10}{63} x 100$ | Understand the core concepts of preclinical basic sciences and their application in clinical practices | • Understand anatomises different types of human dentition<br>• Apply the knowledge of dental anatomy for clinical practices | 1 | 1 | 2 | | | | | | 4 |
| | Oral pathology | 3 | | Understand The different types of pathological processes, that involve the oral cavity | • Understand different classification of oral pathological lesions<br>• Apply the knowledge of oral pathology for differential | | 1 | 2 | 1 | | | | | 4 |

DRAFT

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | diagnosis | | | | | | | | | |
| | Medical ethics | 1 | | Describe the ethical foundations of consent in both clinical practice and research | • keep confidential issues of the patient secret | | | 1 | | | | | | 1 |
| | Dental materials | 3 | | Identify instruments used for dental treatments | Apply appropriate instruments for specific dental procedures | | 1 | 2 | | | | | 1 | 4 |
| Clinical sciences | Operative dentistry | 10 | $\frac{63}{73} x 100$ | Deliveries and performance of dental cavities preparation from class I to class V, pulp capping procedures | • Perform dental cavities preparation from class I to class V, pulp capping procedures RCT of anterior teeth carry out composite restorations<br>• Apply appropriate rotary instruments for dental cavity preparation<br>• Apply hot and cold test to diagnose dental caries | | 4 | 2 | 2 | | | | 6 | 14 |
| | Oral and maxillofacial surgery | 12 | | Make the student to know how to examine any patient with an oral surgical problem and tooth extractions under | • Enable students to acquire knowledge and techniques of minor surgical procedures like tooth extraction<br>• Carry out closed treatment of dental, | | 4 | 2 | 2 | | | | 8 | 16 |

DRAFT

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | general and local anesthesia and know what these anesthetics are it is also the objective of these course to make the students know the instuments of oral surgery. | dentoalveolar and jaw fractures | | | | | | | | | |
| | Periodontics | 6 | | To make the student quire the skill to perform dental scaling, diagnostic tests of periodontal diseases; to use the instruments for periodontal therapy and maintenance of these instruments | • Perform dental scaling with both manual and ultrasonic scalers<br>• Perform periodontal splints & Pharmaco–therapy for periodontal disease | | 2 | 2 | | | | | 4 | 8 |
| | Endodontics | 6 | | To pass to the students' knowledge what Endodontics is and equip them with a basic skills | Apply knowledge of Endodontics to do simple basic root canal treatments | | 1 | 3 | | | | | 4 | 8 |

DRAFT

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | at this level to start simple basic root canal treatments | | | | | | | | | | |
| | prosthodontics | 7 | | **develop the knowledge about partial dental prostheses, assess the need for replacing damaged and missing teeth with fixed prostheses and preventive approach related to fixed prosthesis** | • Understand the partial dental manufacturing procedures and fixation<br>• Prepare abutments, take impressions prepare models and construct partial dentures, | | 2 | 1 | 1 | | | | 6 | 10 |
| | Pedodontics | 7 | | To make the student know how to instil a positive attitude in children towards oral Health and understand the principles of | • Understand the causes of children requiring emergency care<br>• Apply preventive and corrective procedures in | | 3 | 1 | | | | 4 | 2 | 10 |

DRAFT

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | prevention & preventive dentistry right from birth to adolescence including emergency situations | paediatrics patients | | | | | | | | | |
| | Orthodontics | 7 | | to carry out orthodontic assessments and recognize and describe developing & manifest malocclusions. Have skill to do simple orthodontic treatment. | • To perform simple orthodontic treatment<br>• Evaluate orthodontic developmental problems | | 2 | 3 | | 3 | | | 2 | 10 |
| | Dental radiology | 2 | | Make the students have the knowledge of dental radiology and have skill of taking intra oral xray | Apply knowledge of dental radiographs to take intraoral xray | | 1 | 1 | | | | | 1 | 3 |

DRAFT

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oral medicine | 4 | | Understand different classification of oral lesions both malignant and benign | Characterize the typical features of oral carcinoma | | 2 | 1 | 2 | | | | | 5 |
| | Local anesthesia | 2 | | Understand the chemical components of local anesthesia and its indication and contraindication | Give Local anesthesia when indicated | | 1` | 1 | | | | | 1 | 3 |
| Total | | 73 | | | | 1 | 25 | 23 | 8 | 3 | 0 | 5 | 35 | 100 |

DRAFT

## 8. Summary of Learning outcomes in terms of the three domains (Cognitive, Affective and Psychomotor)

Table 4: Summary of learning outcomes in terms of the three domains

| | | | | | **Share of Competencies (in %)** | | | Remark |
|---|---|---|---|---|---|---|---|---|
| Themes | Course Name | Credit hour | Weight of course or proportion | Number of test items from each course | **Knowledge** | **Skill** | **Attitude** | |
| Preclinical basic sciences 13.7% | Dental anatomy | 3 | 3/10=0.3 | 0.3*13.7 = 4 | 4% | | | |
| | Oral pathology | 3 | 3/10=0.3 | 0.3*13.7 = 4 | 4% | | | |
| | Medical ethics | 1 | 3/10=0.1 | 0.1*13.7 = 1 | | | 1% | |
| | Dental material science | 3 | 3/10=0.3 | 0.3*13.7= 4 | 3% | 1% | | |
| | Theme one total credit | **10** | | | | | | |
| Clinical 86.3% | Operative dentistry | 10 | 10/63=0.159 | 0.159*86.3=14 | 8% | 6% | | |
| | Oral & Maxillofacial Surgery | 12 | 12/63=0.19 | 0.19*86.3=16 | 8% | 8% | | |
| | Periodontics | 6 | 6/63 =0.095 | 0.095*86.3 = 8 | 4% | 4% | | |
| | Endodontics | **6** | 6/63=0.095 | 0.095*86.3 =8 | 4% | 4% | | |
| | Prosthodontics | 7 | 7/63=0.111 | 0.111*86.3=10 | 4% | 6% | | |
| | Pedodontics | **7** | 7/63=0.111 | 0.111*86.3=10 | 4% | 2% | 4% | |
| | Orthodontics | 7 | 7/63=0.111 | 0.111*86.3=10 | 8% | 2% | | |
| | Dental radiology | 2 | 2/63=0.03 | 0.03*86.3 = 3 | 2% | 1% | | |

DRAFT

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Oral medicine | **4** | 4/63= 0.06 | 0.06*86.3 =5 | 5% | | | |
| | Local anesthesia | **2** | 2/63=0.0 3 | 0.03*86.3=3 | 2% | 1% | | |
| | Theme two total | **63** | | | | | | |
| Total for the program | | **73** | | | 60% | 35% | 5% | |

DRAFT

## 9. Conclusions

Exit examinations can play an important role in producing graduates who are knowledgeable, skilled, and emotionally mature. It helps to prepare competent graduates by acting as a quality check for effectiveness. It also aids in the enhancement of the quality and effectiveness of academic programs. Furthermore, it can serve as a platform for academic programs at various universities to collaborate in order to improve program quality. As a result, this document has been created to aid in the establishment of exit examinations for all programs offered by the Ministry of Education. For 2015 EC graduating students, exit exam competency selection and identifying core courses were done to meet the graduation profile, competency, and learning outcome. As a result, preparing test blueprint is necessary to prepare fairly distributed items based on the above criteria.

DRAFT