



**Identified Competency Focus Areas and Core Courses for
National Exit Examination**

(Revised)

Program: Bachelor Science Degree in Anaesthesia

BSc in post basic Anaesthesia

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1. Introduction

Of all milestones and achievements in medicine, conquering pain must be one of the very few that has potentially affected every human being in the world. Modern medicine that enables people to have healthier and longer lives could never be possible without anaesthesia, especially in diagnostic, obstetric and surgical procedures. It was in 1846 that one of mankind's greatest fears, the pain of surgery, was eliminated. The practice of anaesthesia is centred on patient evaluation, management and monitoring before, during, and after surgery, ensuring optimal patient safety.

The general health condition of the clients should be determined before surgery to plan appropriate anaesthetic techniques and minimize perioperative morbidities and mortality. Being absent-minded for a moment may result in fatal and irreversible outcomes as the life of the patient is in the anaesthetist's hands. This obliges that patients under anaesthesia should be monitored with vigilance to help the patient with early recognition and management of intraoperative events. In addition, clients' autonomy must be respected while proposing the type of anaesthesia and pain management options.

Anaesthesia is often cited as a model for its achievements in the field of patient-safety improvements through improved training of practitioners, the popularity of regional anaesthesia, better communication of safety information and recommendations, more extensive and focused research into the safety and human factors, and improved Anaesthesia and ancillary medications. Despite the aforementioned advances in Anaesthesia practice, the improvement in patient outcome and safety is still confronted by counterbalancing forces that increase perioperative complications. This might be due to the expansion of surgical scopes, considering surgery for elders and for more ill patients, fragmented health care, human errors including inadequate knowledge, inadequate decision, inadequate care, and poor preoperative patient evaluation which can be associated with the quality of education.

In order to diagnose and take remedies for these ailments, we must create competent graduates who can first understand the complex nature of anaesthesia practice. In fact, a competent graduate in anaesthesia can provide safe patient care that lead to long and healthier life. Thus, implementing exit exams for anaesthesia program graduates will have a great implication in producing competent anaesthesia professionals in knowledge, skill, and attitude.

Implementing an exit exam as an intervention strategy is one of the best ways to check whether students achieved the desired level of competency. Hence, competence-based comprehensive exit examination will be administered upon the completion of the program.

In this regard, the Ministry of Education (hereafter MoE) has been working on a strategy to implement exit exams for undergraduate programs beginning from 2015 E.C (2022/23 G.C).

The main objectives of exit examination are as follows:

- To ensure students' achievement and improve the quality of education;
- To improve the relevance of academic programs and institutional performance;
- To assess whether higher education graduates attain the graduate profile or not
- To produce skilled and competent manpower for local, national, and international markets;
- To provide a platform as a quality monitoring tool in the form of certification of competence for employment;

Significance of Exit Examination for Undergraduate Anesthesia Program

Moreover, it is important to set competency areas of the subject matter in order to measure how much the graduates acquired knowledge, skills and attitude. The significance of setting competencies and identifying core courses of the program can be described as: -

- ✓ To set competencies that helps to assess the basic skills, knowledge and attitude of graduating students of BSc in Anaesthesia.
- ✓ To systematically identify the core courses which will be included in the exit exam.

2. Expected Profiles of Graduates

Upon completion of the training, the graduates will be able to:

- Perform comprehensive pre-Anaesthesia patient assessment including taking history, performing a physical examination, order and interpret relevant investigations and obtain informed consent
- Prepare and optimize patients for surgery and anaesthesia

- Utilize anaesthesia equipment, monitoring devices, medical gas sources, Anaesthesia agents and supplies according to the acceptable practice standards and protocols
- Apply standard safety measures to manage perioperative hazards
- Manage patient airways using different modalities
- Manage anaesthesia for different general and urologic surgical procedures
- Manage anaesthesia for obstetrics and gynaecologic surgeries
- Manage anaesthesia for trauma and orthopaedic surgeries
- Manage anaesthesia for geriatric patients undergoing surgeries
- Manage anaesthesia for pediatric and neonatal surgeries
- Manage anaesthesia for emergency thoracic surgeries
- Manage anaesthesia for ophthalmic surgeries
- Manage anaesthesia for maxillofacial and ENT surgeries
- Manage anaesthesia for neurosurgeries
- Manage remote anaesthesia
- Provide postoperative care to a surgical patient
- Engage in the patient discharge process from PACU
- Assess and manage acute pain
- Participate in the management of chronic and cancer pain
- Perform different regional blocks for pain management service
- Engage in the initial assessment and stabilization of critically ill patients
- Engage in the management of emergency and critically ill patients
- Perform effective Basic and Advanced Life Support (BLS and ALS)
- Demonstrate professionalism in anaesthesia practice
- Engage in the conduct of research relevant to anaesthesia services
- Apply the principles of evidence-based practice
- Conduct a clinical audit and need assessment
- Develop, implement and monitor the overall anaesthesia service plan in a facility
- Adapt and implement a quality improvement and assurance framework for quality anaesthesia service delivery

3. Competences and Learning Outcomes

3.1. Competences

Currently, the competency of students will be measured by national exit examination at the end of completion of Anaesthesia program with a great emphasis on students' knowledge, skill, and attitude.

After a critical review of the existing, curriculum, national qualification standard (NQS) and international evidence on qualification standards, the competencies expected of the baccalaureate graduate anaesthesia professionals are defined.

At the exit level, 11 competencies are expected of the bachelor of anaesthesia qualification for graduation as stated below:

1. Assess, optimize and prepare patients for surgery and anaesthesia
2. Utilize anaesthesia machine, equipment, supply, and monitoring devices properly
3. Manage patients' airways using different modalities
4. Provide safe intraoperative Anaesthesia management for patients
5. Provide safe postoperative Anaesthesia care
6. Manage pain for different patient groups
7. Engage in pre-hospital, emergency, and critical care services
8. Perform cardiopulmonary resuscitation (CPR) effectively
9. Apply ethical and legal principles in anaesthesia practice
10. Participate in scientific evidence generation and utilization
11. Manage anaesthesia service in a health facility

Table 1: Competencies classified into knowledge, skills, and attitudes

Areas of Competency	Expected Competencies to be achieved
Knowledge	<ul style="list-style-type: none">• Understand the scope of Anesthesia practice and code of conduct• Identify patients with co-morbid disease• Stratify perioperative patient risks by using different risk stratification tools (ASA, cardiac risk index...)• Evaluate the effects of different Anaesthesia drugs

Areas of Competency	Expected Competencies to be achieved
	<ul style="list-style-type: none"> • Decide appropriate anesthesia techniques by considering patients autonomy • Identify complications that may happen during Anaesthesia management • Recognize ethical principles and ethical dilemma in anesthesia practice • Analyze the different research methods, evidence generation and utilization in anesthesia • Analyze the different modalities of airway management • Discuss pathophysiology of pain and the management options • Identify different leadership styles and management of anesthesia service in health facilities
Skills	<ul style="list-style-type: none"> • Assess, optimize and prepare patients for surgery and anesthesia • Utilize anesthesia machine, equipment, supply, and monitoring devices properly • Manage patients' airways using different modalities • Provide safe intraoperative Anaesthesia management for patients • Provide safe postoperative Anaesthesia care • Manage pain for different patient groups • Engage in pre-hospital, emergency, and critical care services • Perform cardiopulmonary resuscitation (CPR) effectively • Apply ethical and legal principles in anesthesia practice • Participate in scientific evidence generation and utilization • Communicate effectively with colleagues and other co-workers • Manage anesthesia service in a health facility
Attitudes	<ul style="list-style-type: none"> • Appreciate ethical principles and ethical dilemma during anesthesia practice • Adhere to effective communication and the spirit of team work • Approach patients in a competent, motivated, compassionate and caring manner • Respect patients' values, norms, dignity, and privacy

3.2. Learning Outcomes

By the end of this program, the students will be able to:

- ✚ Understand the history and scope of Anesthesia profession, the ethical principles to provide compassionate and respectful care within their scope of practice
- ✚ Explain how preoperative, intraoperative, and postoperative anaesthesia care is provided for the patient with standard IPC and safety principles
- ✚ Apply knowledge of basic sciences for understanding and analyzing disorders of body fluids, blood cells, and homeostasis.
- ✚ Manage fluid, electrolytes, acid-base imbalance, and blood transfusion in a compassionate, respectful, and caring manner and utilize Anaesthesia equipment and monitors.
- ✚ Perform a comprehensive preoperative assessment, optimize patients before anaesthesia and provide post-anaesthesia ca
- ✚ Perform airway assessment, utilize airway equipment, and identify and manage a difficult airway.
- ✚ Select and administer appropriate Anaesthesia drugs; adjuvants, and other classes of drugs used in anaesthesia practices
- ✚ Provide anaesthesia for different general surgical procedures and thoracic emergency surgeries
- ✚ Provide regional anaesthesia and acute pain management for surgical and non-surgical patients in a compassionate, respectful, and caring manner
- ✚ Manage perioperative Anaesthesia care for common obstetrics and gynecologic surgeries
- ✚ Apply principles and methods of health promotion to improve the health of the population
- ✚ Provide perioperative Anaesthesia care for pediatrics and life-threatening neonatal emergencies
- ✚ Provide effective Anaesthesia management of patients with trauma, burn, shocked, and orthopedic Surgeries in professional manner
- ✚ Provide day-care anaesthesia and procedural sedation techniques for different procedures

- ✚ Provide safe anaesthesia for patients with coexisting diseases and psychiatric illnesses
- ✚ Provide Anesthesia for various types of ENT, maxillofacial, and ophthalmic surgery
- ✚ Develop a research proposal, undertake a health research project, review, utilize critically appraised literature, and implement evidence-based practice
- ✚ Provide anaesthesia for neurosurgical patients
- ✚ Provide perioperative anaesthesia care for geriatric patients
- ✚ Participate in the assessment and management of critically ill patients in the intensive care unit and emergency department
- ✚ Apply principles of management and leadership for the effective and efficient management of the Ethiopian healthcare system

4. Categorizing modules/courses of the Program in to Themes

National Exit Examination in Anesthesia program for undergraduate students' competency has three themes. These are Anesthesia patient care and professionalism, leadership and management, and research and evidence based practice.

1. Anaesthesia Patient Care and Professionalism

Under this theme, seven modules such as preoperative and postoperative assessment and care, Airway management, Basics of Anesthesia, Pharmacology for Anesthetists, Perioperative Anesthesia management (for all anaesthesia specialities in their scope of practice), Regional anaesthesia and Pain management, and Emergency and critical patient care were identified

2. Leadership and Management

Under this theme, two modules are included; Health promotion and disease prevention, and Leadership and management

3. Research and Evidence based Practice

Under this theme, two modules are included; Measurement of health and disease, and research method, evidence based medicine and clinical audit

Table 2: List of themes with their credit hours/ECTS and level emphasis

S.N	List of Themes in Anesthesia Program	Cr.hr	ECTS	Shares in %
1	Anesthesia patient care and Professionalism	68	105	84%
2	Leadership and management	7	10	9%
3	Research and evidence based practice	6	9	7%
	Total Cr.hr	81	124	100%

5. Modules/Courses to be included in Anesthesia Exit Examination

This document has been compiled with **three themes** and **fifteen modules/courses** for exit examination for achieving the competencies level of graduates that are expected to acquire. According to the direction suggested by the head of quality and competency improvement desk (at MoE), during the preparation of this document, there was a general consensus that a specific program should consider a total of **10-15 lists of courses**. Accordingly, anaesthesia exit examination document has identified **15 modules/courses** delivered at different semesters and academic calendars.

List of Themes	List of modules/courses	Cr.hr	ECTS
Anesthesia patient care and professionalism	Introduction to Anesthesia & Pharmacology for Anesthetists	6	10
	Basics of Anesthesia & Airway management	6	9
	Preoperative and postoperative assessment and care	3	4
	General surgery and thoracic emergency anaesthesia(including geriatrics anesthesia)	1 0	16
	Regional anaesthesia and pain management	6	9
	Obstetrics and gynecologic anaesthesia	7	1 0
	Neonatal paediatrics anaesthesia	6	9
	Trauma, burn and orthopaedic anaesthesia	5	7
	Anesthesia for patients with co-existing disease	4	7
	EENT and maxillofacial, Day case and remote anaesthesia	7	1 1

List of Themes	List of modules/courses	Cr.hr	ECTS
	Neuro-anesthesia, Emergency and critical care	8	1 3
Leadership and management	Health promotion and disease prevention	4	6
	Leadership and management	3	4
Research and evidence based practice	Measurement of health and disease prevention	3	5
	Research method evidence based medicine and clinical audit	3	4

6. Conclusion

Having a competency based exit examination guide Anesthesia program enables HEIs in producing competent anaesthesia graduates on Anesthesia patient care and professionalism, leadership and management, and research and evidence based practice in Ethiopia. Generally, the basic aim of the national exit examination is to produce high-level and qualified professionals in anaesthesia that will help have healthy and productive community.

The national exit examination offers a comprehensive basis for graduates' careers and further education in anaesthesia on the identified modules/course lists and themes. Graduates in anaesthesia will be equipped with knowledge, skill and attitude required for anaesthesia patient care, psycho-social issues, participating in different research findings and providing health consultancy services to the community.

This exit examination guide constitutes of graduate profiles, core competencies, major learning outcomes, modules/courses categorized into domains/themes and selected modules/courses to include in the examination.

Therefore, the academia, students, and concerned higher officials are expected to be responsible for the success of the new intervention coup up mechanism the so-called National Exit Examination.