

# **In The Name of God**

## **Section I:**

**Title:** Anesthesiology

**Degree:** M.Sc.

### **Introduction**

Considering the advancements in anaesthesiology and the development of related technology and equipment, the necessity to train anaesthesiology students at master's level has gotten important. To perform a successful surgery, members of a specialized team should act in coordination. Among the most important members of the surgical team is an anesthesia technologist. The responsibilities of such a person are to prepare the anesthesia instruments and environment, observe sterilization, assist the anaesthesiologist during anesthesia, and perform patient care before, during, and after anesthesia. These individuals' preparedness requires special professional training, and the present curriculum is designed to that end. The program has been ratified by the Medical Sciences Supreme Planning Council and been submitted to related universities to be performed.

### **Definition**

Master of Science in Anesthesiology is one of the medical sciences educational programs, during which students become familiar with new anesthesiology principles, different anesthesia techniques, and related equipment, instruments, and drugs. Moreover, they learn how to take care of patients under general and local anesthesia before, during, and after general, special, and subspecial surgeries. Familiarity with care principles and techniques of acute pain control and with measures to be taken in medical emergencies and needed action in critical situations are also among students' training programs. Graduates of this program will provide the society with what they learn in the areas of education, research and services.

### **Mission & Vision**

The mission of this program is to train individuals who can provide patient care in special and subspecial anesthesia wards and in pain control and post-operative wards under an anesthesiologist's supervision. The vision of the program is focused on the enhancement of care standards in the operating room, improvement of educational and research standards in the field of anesthesiology, and updating the application method of new technologies with maximum efficiency using skilled, capable and talented individuals in the field.

### **General Expected Competencies**

- Communication skills
- Education
- Statistical calculations
- Research and scientific article publication
- Critical thinking and problem-solving skills
- Evidence-based management skills (planning, organizing, monitoring, controlling, evaluating)
- Professionalism

### **Specific Expected Competencies**

- Monitoring patients' vital signs and body systems continuously and reporting abnormalities to the anesthesiologist,
- Controlling infections during anesthesia and surgeries and preventing their transmission and spread,
- Preparing patients mentally and physically before anesthesia,
- Taking care of patients before, during, and after anesthesia,
- Helping to make patients unconscious with anesthesiologist's direct responsibility,
- Participating in the CPR team,
- Participating in patients' protection against potential anesthesia side effects,
- Cooperating with and giving assistance to the anesthesiologist to re-establish proper airway using different available equipment and pipes as required,
- Participating in the functioning evaluation of devices and equipment under an anesthesiologist's supervision,
- Cooperating and giving assistance to register the papers related to anesthesia under the supervision of an anesthesiologist,
- Helping anesthesiologists to resuscitate patients,
- Assisting in patients' transfer to PACU,
- Settling in PACU and providing healthcare services to patients,
- Controlling and registering patients' vital signs and monitoring different body systems till full consciousness,
- Using oxygen therapy devices, humidifiers, etc. effectively according to the anesthesiologist's order,
- Taking part in isolation and infection control procedures,
- Participating in the provision, preparation, and maintenance of devices, equipment, tools, and other facilities needed in PACU,
- Participating in procedures related to patients' discharge from PACU under an anesthesiologist's supervision,
- Helping anesthesiologists in pain control methods,
- Monitoring vital signs and oxygenation sufficiency and reporting the cases,
- Monitoring the possible side effects of pain-service patients and reporting the cases to the anesthesiologist; and,
- Participating and giving assistance in patients' discharge from the pain service under an anesthesiologist's supervision.

### **Terms and Conditions of Admission to the Course**

- A. Holding a B.Sc. degree in anesthesiology
- B. Submitting a CV

### **Educational Strategies, Methods and Techniques**

- Theoretical
- Practical
- Problem solving

### **Student Assessment**

- Examination
- Seminar
- Problem solving activities

### Types of Courses and Number of Credits

Obligatory, Special Courses (CORE)	32 Credits
Thesis	4 Credits
<b>Total</b>	<b>36 Credits</b>

**Table A. Compensatory Courses in Discontinuous Master’s Program in Anesthesiology**

Course Code	Title	Number of Credits			Course Hours			Prerequisite or Simultaneous with
		Theoretical	Practical	Total	Theoretical	Practical	Total	
01	Medical Information Systems	0.5	0.5	1	9	17	26	-----
02	Special Anatomy and Physiology	3	-----	3	51	-----	51	-----
<b>Total</b>				4				

**Table B. Obligatory, Special Courses (Core) in Discontinuous Master’s Program in Anesthesiology**

Course Code	Title	Number of Credits				Course Hours				Prerequisite or Simultaneous with
		Theoretical	Practical	Internship	Total	Theoretical	Practical	Internship	Total	
03	Anesthetic Drugs Pharmacology	2	-----	-----	2	34	-----	-----	34	-----
04	Principles of Anesthesia	3	-----	3	6	51	-----	153	204	02
05	Introduction to Anesthesia Methods	3	-----	3	6	51	-----	153	204	04
06	Anesthesia and Reanimation	4	-----	4	8	68	-----	204	272	04-05
07	Intensive Care Principles and Cardiopulmonary Resuscitation Methods	2	-----	-----	2	34	-----	-----	34	-----
08	Hematology and Blood Transfusion	2	-----	-----	2	34	-----	-----	34	04
09	Choice of Anesthesia Method in Special Surgeries	2	-----	2	4	34	-----	102	136	02-05
10	Research Methods	2	-----	-----	2	34	-----	-----	34	-----
11	Thesis	2	-----	2	4	-----	-----	-----	-----	-----
<b>Total</b>					32					

## **Ethical Issues**

The graduates should,

- Observe the Patient's bill of rights<sup>1</sup> when working with the patients.
- Strictly observe biosafety and patient safety rules\* concerning the patients, personnel and workplace.
- Observe the rulebook of dress code<sup>2</sup>.
- Strictly observe regulations of working with the laboratory animals<sup>3</sup>.
- Carefully preserve resources and equipment.
- Truly respect faculty members, the staff, classmates and other students and work for creating an intimate and respectful atmosphere.
- Observe social and professional ethical considerations in criticism.

1, 2 & 3 are contained in the enclosures.

\*Biosafety and patient safety rules will be set out by the educational departments and will be available to the students.

## Section II

### Medical Information Systems

**Code of the Course:** 01

**Prerequisite:** None

**Number of Credit:** 1 (Practical 0.5 unit - Theoretical 0.5 unit)

**Type of the course:** Theoretical – Practical

#### **Principal Objective(s) of the Course:**

In this course, students should be able to have the ability to use library patterns and different ways of searching main database in their field. Become familiar with university library services. Among the other goals of this course is to gaining the knowledge of using the other popular internet browsers so that students can work with search engines and become familiar with famous useful sites around their study field.

At the end, student should have the ability to create and use an Email account to send or receive files and letters.

#### **Course Description:**

In this course, students become familiar with internet, important website, Email and database in order to use computer and its facilities particularly for study and research in their field.

**Main Topics:** 26 hours

**Theoretical:** 9 hours

**Practical:** 17 hours

#### **Main Reference(s):**

- Instrumentation for Operating Room: A Photograph Manual, Last edition
- Philips, Nancy Marie. Berry & Kohn's operating room technique. Elsevier Mosby last edition.
- Rothrock JC. Alexander's *Care of the Patient in Surgery*. 13<sup>th</sup> ed. St. Louis, MO: Mosby; last edition.
- Frey K, Ross T. eds. *Surgical Technology for the Surgical Technologist: A Positive Care Approach*. Clifton Park, NY: Delmar Cengage; last edition.
- Bruna CQ, Pinto FM, Graziano KU. The influence of environmental temperature and air humidity on the maintenance of sterility of surgical instruments sterilized in different wraps. *Infect control Hosp. Epidemiol.* Last edition.

#### **Student Assessment:**

Final exam (written), seminar, class attendance and class participation.

## **Special Anatomy and Physiology**

**Code of the Course:** 02

**Prerequisite:** None

**Number of Credit:** 3

**Type of the Course:** Theoretical

### **Principal Objective(s) of the Course:**

Becoming familiar with some of the human body systems and the overview of their physiology in relation to anesthesia.

### **Course Description:**

In this course, students will learn about the structure and physiology of human body and how to apply their knowledge in practice at patients' bedside.

**Main Topics:** 51 hours

**Theoretical:** 51 hours

### **Main Reference(s):**

- *Gray Anatomy for Students*. Richard L. Drake & et al. Last ed.
- *Ross and Wilson Anatomy and Physiology*. Guyton. A. Last ed. Anne Waugh, Allison Grant. Last ed.
- *Text Book of Anatomy and Physiology*. Guyton A Last ed.
- *Basic of Clinical Physiology*. Green j. h. Last ed.

### **Student Assessment:**

Final exam (written), seminar, class attendance and class participation.

## **Anesthetic Drugs Pharmacology**

**Code of the Course:** 03

**Prerequisite:** None

**Number of Credit:** 2

**Type of the Course:** Theoretical

### **Principal Objective(s) of the Course:**

Becoming familiar with the use of specific anesthesia drugs and their effects on different body systems.

### **Course Description:**

In this course, students will become familiar with the effects of general and local anesthesia drugs, and other drugs used in the field, and will get to know the side effects of such drugs, drug interactions, and their effects on different body systems. They will also learn about patients' preparation methods, their maintenance, and the necessary points on patient care at the time of drug prescription and after that.

**Main Topics:** 34 hours

**Theoretical:** 34 hours

### **Main Reference(s):**

- *Drugs in Anesthetic and Intensive Care Practice*. Vickers M.D. and et al., Last ed.
- *Anesthesia*. Ronald D. Miller, Last ed.
- *Basic & Clinical Pharmacology*, Bertram G. Katzung, Susan B. Masters, Anatomy J. Trevor, Last ed.

### **Student Assessment:**

Final exam (written), seminar, class attendance and class participation.

## **Principles of Anesthesia**

**Code of the Course:** 04

**Prerequisite:** Special Anatomy and Physiology

**Number of Credit:** 6 (Theoretical 3 unit – Internship 3 unit)

**Type of the course:** Theoretical – Internship

### **Principal Objective(s) of the Course:**

Getting familiar with the principles of general and local anesthesia, and with equipment, tools, facilities, and rules related to anesthesia.

### **Course Description:**

In this course, students will become familiar with the basic principles of general and local anesthesia, and the related equipment, tools, and facilities. They will also learn about the methods of managing patients' airways in theory and practice and the principles of monitoring different body systems.

**Main Topics:** 204 hours

**Theoretical:** 51 hours

**Hospital Training:** 153 hours

### **Main Reference(s):**

- *Basics of Anesthesia.* Robert K. Stoelting, Ronald D. Miller, Last ed.
- *Introduction to Anesthesia.* Robert D. Dripps & et al., Last ed.
- *Principle of Clinical Measurement and Monitoring Anesthesia and Intensive Care.* M. K. Sykes, M. D. Vickers, C.J. Hull, Last ed.
- *Ward's Anesthetic Equipment.* Andrew J. Davey, Ali Diba, Last ed.

### **Student Assessment:**

Final exam and continuous evaluation during the course.



## **Introduction to Anesthesia Methods**

**Code of the Course:** 05

**Prerequisite:** Principle of Anesthesia

**Number of Credit:** 6 (Theoretical 3 unit – Internship 3 unit)

**Type of the Course:** Theoretical – Internship

### **Principal Objective(s) of the Course:**

Learning different kinds of anesthesia in case of possible complications in children, women, the elderly, patients with cardiovascular diseases and those with brain damage, and acquiring the necessary capabilities to take care of patients at different stages of general and local anesthesia.

### **Course Description:**

In this course, students will become familiar with some common diseases and anesthesia methods in children, women and the elderly and will learn about the required equipment and facilities. They will also learn about the necessary preparations in patient care at different stages of general and local anesthesia (before, during and after anesthesia) especially in case of possible side effects.

**Main Topics:** 204 hours

**Theoretical:** 51 hours

**Hospital Training:** 153 hours

### **Main Reference(s):**

- *Basics of Anesthesia*. Robert K. Stoelting, Ronald D. Miller, Last ed.
- *Anesthesia and Co- Existing Disease*. Robert K. Stoelting, Stephen F. Dierdorf, Last ed.
- *Nurse Anesthesia*. John J. Nagelhout & et al. Last ed.

### **Student Assessment:**

Final exam and continuous evaluation during the course.

## **Anesthesia and Reanimation**

**Code of the Course:** 06

**Prerequisite:** Principle of Anesthesia - Introduction to Anesthesia Methods

**Number of Credit:** 8 (4 units theoretical - 4 units internship)

**Type of the Course:** Theoretical – Internship

### **Principal Objective(s) of the Course:**

Becoming familiar with the principles of anesthesia and reanimation

### **Course Description:**

In this course, students will learn about the function and structure of cell components, how axon and synapse are related with anesthesia, use of anesthesia drugs, principles of guiding analgesia, clinical experiences in anesthesia, and patient monitoring during anesthesia.

**Main Topics:** 272 hours

**Theoretical:** 68 hours

**Hospital training:** 204 hours

### **Main Reference(s):**

- *Basics of Anesthesia.* Robert K. Stoelting, Ronald D. Miller, Last ed.
- *Anesthesia and Co- Existing Disease.* Robert K. Stoelting, Stephen F. Dierdorf, Last ed.
- *Nurse Anesthesia.* John J. Nagelhout & et al. Last ed.
- *Textbook of Anesthesia.* A. R. Aitkenhead, G. Smith. Last ed.

### **Student Assessment:**

Final exam and continuous evaluation during the course.

## **Intensive Care Principles and Cardiopulmonary Resuscitation Methods**

**Code of the Course:** 07

**Prerequisite:** Principle of Anesthesia

**Number of Credit:** 2

**Type of the course:** Theoretical

### **Principal Objective(s) of the Course:**

Getting familiar with new diagnostic, treatment care methods in critical situations, how to use equipment, and how to manage the intensive care unit (ICU).

### **Course Description:**

In this course, students will become familiar with the organization, standards, rules, and management of intensive care unit (ICU). They will also learn about the use and maintenance of tools and equipment, diagnostic and treatment methods, and respiratory, rehabilitation, and infection carecontrols. Finally, they will get to know how to take care of critically ill patients with different body system disorders that need special attention.

**Main Topics:** 34 hours

**Theoretical:** 34 hours

### **Main Reference(s):**

- *The ICU Book*. P. Marino, et al. Last ed.
- *Critical Care Handbook of Massachusetts General Hospital*. William E. Hurford, et al. Last ed.
- *Basics of Anesthesia*. Robert K. Stoelting, Ronald D. Miller, Last ed.
- *Respiratory care Equipment*. Richard D. Branson, et al Last ed.

### **Student Assessment:**

Final exam (written), seminar, class attendance and class participation.

## **Hematology and Blood Transfusion**

**Code of the Course:** 08

**Prerequisite:** Principle of Anesthesia

**Number of Credit:** 2

**Type of the Course:** Theoretical

### **Principal Objective(s) of the Course:**

Becoming familiar with blood and its products and derivatives, how to keep and maintain them, necessary attention to patients at the time of blood transfusion and possible side effects.

### **Course Description:**

In this course, students will learn about blood components and derivatives. They will also be able to define the importance of blood transfusion and blood products and explain how to keep and maintain blood. Finally, they will learn about the possible side effects of blood transfusion.

**Main Topics:** 34 hours

**Theoretical:** 34 hours

### **Main Reference(s):**

- *Textbook of Blood Banking and Transfusion Medicine.* Sally V. Rudman, Last ed.
- *Modern Blood Banking and Transfusion Practices.* Denise M. Harmening, Last ed.
- *Clinical Practice of Transfusion Medicine.* L. D. Petz, S.N. Swisher, Last ed.

### **Student Assessment:**

Final exam (written), seminar, class attendance and class participation.

## **Choice of Anesthesia Method in Special Surgeries**

**Code of the Course:** 09

**Prerequisite:** Introduction to anesthesia methods, special anatomy and physiology

**Number of Credit:** 4 units (Theoretical 2 unit – Internship 2 unit)

**Type of the Course:** Theoretical – Internship

### **Principal Objective(s) of the Course:**

Getting familiar with specific anesthesia methods in special and subspecial surgeries and with diagnostic-therapeutic measures, and acquiring the necessary capabilities to take good care of patients.

### **Course Description:**

In this course, students will become familiar with the methods of patient care, how to prepare patients for general and local anesthesia, and how to use different techniques to anesthetize and revive them in special and subspecial surgeries. They will also learn about other diagnostic-therapeutic measures and gain the ability needed for optimal patient care.

**Main Topics:** 136 hours

**Theoretical:** 34 hours

**Hospital training:** 102 hours

### **Main Reference(s):**

- *Basics of Anesthesia.* Robert K. Stoelting, Ronald D. Miller, Last ed.
- *Anesthesia and Co- Existing Disease.* Robert K. Stoelting, Stephen F. Dierdorf, Last ed.
- *Introduction to Anesthesia.* Robert D. Dripps & et al., Last ed.

### **Student Assessment:**

Final exam and continuous evaluation during the course.

## **Research Methods**

**Code of the Course:** 11

**Prerequisite:** None

**Number of Credit:** 2

**Type of the Course:** Theoretical

### **Principal Objective(s) of the Course:**

Enhancing students' knowledge about medical sciences research methods. At the end of this course, students must be able to prepare a research proposal that includes: identifying a problem, doing literature review, specifying the research objectives, etc.

### **Course Description:**

In this course, students will get to know about the different research methods in medical and health sciences.

**Main Topics:** 34 hours

**Theoretical:** 34 hours

### **Main Reference(s):**

- Lumley J. S.P. Benjamin W. *Some Ground Rules Oxford University Press*. Oxford. Last ed.
- Abedsaedi Zilla and Amir, Aliakbari Sedeghe, *Research Method in Medical Sciences*, Last ed.
- Asefzadeh Saied, Mallek afzali Hosien. *Ten Steps in Research of the Health and Treatment Systems*, Tehran, Health, treatment and Medical educations Ministry, Last ed.

### **Student Assessment:**

Final exam (written), seminar, class attendance and class participation.

## **Thesis**

**Code of the Course:** 10

**Prerequisite:** None

**Number of Credit:** 4

**Type of the Course:** Theoretical–Internship

### **Principal Objective(s) of the Course:**

Engaging students in research in the field of anesthesia aiming to create innovation and reduce the complication of anesthesia.

### **Course Description:**

In this course, students must choose a topic (based on the needs of the country) for their thesis using their information about anesthesia methods and complications and with the help of different existing studies and researches together with their own skill in designing and implementing a research study.

### **Student Assessment:**

Final hand-in report

# **In The Name of God**

## **Master of Science in Anesthesia**

### **Introduction**

According to anesthesia progress and equipment and technology development and also to empower anesthesiology under graduates, it was felt the necessity to train anesthesiology student in master degree levels and gathered master's educational programs.

To perform a successful surgery, specialized and skilled professional team should act together. One of the most effective members of the surgical team is anesthesia technologists. This person responsibilities are to prepare the area and anesthesia instruments, consider the sterilization, assisting anesthesia during anesthesia and patient care before during and after anesthesia. Preparation of these people requires special professional training.

This curriculum designed to train the earlier mentioned people. It became ready to use in universities after passing legal steps and the approval of the supreme planning council of medical sciences.

Name:

### **Master of Science in Anesthesia**

Course definitions: Master of Science in Anesthesia is one of the medical Sciences branch, which teach student with new principle, techniques of anesthesia, equipment, instrument, and related drugs. It teaches students how to care of patient under general and local anesthesia before during and after surgery.

Familiarity to the technique and principles of care and control in acute pain medical emergency measures and critical situation are the other training programs for students.

Graduates of this course, use their knowledge in the field of education, research and services to respond to society.

The aim of this course:

The mission of this course is about training students to be able to take care of patient under supervision of an anesthesiologist.

The vision of this courser is focused on improve the standards of care in operating room, improve the standards of education and research in the field of anesthesia and update the application of new technology with maximum efficiency and with usage of skilled, capable and talented human force in area of anesthesia.



## Expected competencies

- Communication skills
- Education
- Statistical calculations
- Research and scientific publication
- Critical thought and problem solving skills
- Management skills (planning-organizing, monitoring, control, valuation) based on evidence
- Professionalism

## Special competencies:

Specific competencies for student in M.Sc. degree follows as:

- Sequential monitoring of vital signs and body system and report unnatural items to anesthesiologist.
- Control and prevent the transmission and spread of infection during surgery and anesthesia.
- Mental and physical preparation of patients before anesthesia.
- Patient care before, during and after anesthesia.
- Contribute to patient anesthesia by direct responsibility of the anesthesiologist
- Participation in the CPR.
- Participation in protecting the patient from potential side effects of anesthesia.
- Cooperation and assistance the anesthesiologist to maintain proper airway by various available equipment and pipes as required.
- Participation in evaluating the performance of devices and equipment under the supervision of an anesthesiologist.
- Cooperation and assistance in registration paper related to anesthesia under the supervision of an anesthesiologist
- Assist the anesthesiologists in the resuscitation of patient
- Assisting in transferring patient to PACU
- Settlement in PACU and provide healthcare services to patients
- Control condition of vital signs and monitoring different body system to full consciousness
- Effective use of oxygen therapy device – humidifiers and ... according to anesthesiologist order.
- Participation in isolation and infection control procedures.
- Participation in the provision, preparation and maintenance of instruments, equipment, tools and other facilities needed in PACU.

- Participation in proceeding related to patients discharge from PACU under supervision of an anesthesiologist.
- Helping anesthesiologist in pain management methods.
- Monitoring possible side effect of patients pain service and inform the anesthesiologist.
- Participation and assistance in the discharging patient from pain service under supervision of an anesthesiologist.

## Student Assessment

Exam

Seminar

Problem solving

Program name: Master of Science in Anesthesia

Special units – obligatory (core): 28 unit

Thesis: 4 unit

Shortage or compensatory of training course in M.Sc. Anesthesia:

Course code	Course name	Course numbers			Course Hours			Prerequisite or Simultaneously
		Practical	Theoretical	Total	Practical	Theoretical	Total	
01	Medical information system	0.5	0.5	1	17	9	26	-
02	Special anatomy and physiology	-	3	3	-	51	51	-
Total		4						

Special core of training courses in M.Sc. operating room

Course code	Course name	Course numbers				Course Hours				Prerequisite or Simultaneously
		Internship	Practical	Theoretical	Total	Internship	Practical	Theoretical	Total	
03	Pharmacology anesthetic drugs	-	-	2	2	-	-	34	34	-
04	Principle of anesthesia	3	-	3	6	153	-	51	204	02
05	Introduction to anesthesia methods	3	-	3	6	153	-	51	204	04
06	Anesthesia and reanimation	4	-	4	8	204	-	68	272	04-05
07	Principle of intensive care, and cardiopulmonary resuscitation methods	-	-	2	2	-	-	34	34	-
08	Hematology and blood transfusion	-	-	2	2	-	-	34	34	04
09	Choose anesthesia in special surgery	2	-	2	2	102	-	34	136	02-05
10	Thesis	-	-	-	4	-	-	-	-	-
11	Research method	-	-	2	-	-	-	34	-	-
total		32								

Title: Medical information systems **01**

**Prerequisite:** none

**No. of unit:** 1 (practical 0.5 unit – Theoretical 0.5 unit)

**Type:** Theoretical – Practical

**General Purpose:** In this course, students should be able to have the ability to use library patterns and different ways of searching main database in their field. Become familiar with university library services. Among the other goals of this course is to take the knowledge of using the other popular internet browsers so that students can work with search engines and become familiar with famous useful sites around their study field.

At the end student should have the ability to create and use an Email to send or receive files and letters.

**Course description:** In this course, students become familiar with internet, important website, Email and database in order to use computer and its facilities practically for study and research in their field.

**Main topic: 26 Hours**

**Theoretical: 0.5 units (9hours)**

**Practical: 0.5 units (9hours)**

**Principal reference(s):**

- 1- **Kiley R Medical Information on the Internet, A Guide for Health Professionals,** Churchill Livingstone, Edinburg, Scotland. Last edition

**Student assessment practices:** Exam (practical and written) at the end of the course, Seminar, and being active during the course

Title: Special anatomy and physiology **02**

**Prerequisite:** none

**No. of unit:** 3

**Type:** Theoretical

**General Purpose:** Introduction to structures of some human body systems and overview about physiology of the body systems related to anesthesia.

**Course description:** In this course, students learn about physiological structure of human body, and use their knowledge in patient bedside.

**Main topic:** 51 Hours

**Theoretical:** 3 units (9hours)

**Principal reference(s):**

- 1- **Gray anatomy for students.** Richards. Drake and et al. Latest ed.
- 2- **Textbook of medical physiology.** Guyton A. C. latest ed.
- 3- **Basic of clinical physiology.** Green J.H. Latest ed.
- 4- **Textbook of anatomy and physiology.** Guyton A. C. latest ed.

**Student assessment practices:** Exam (practical and written) at the end of the course, Seminar, and being active during the course

Title: Pharmacology anesthetic drugs **03**

**Prerequisite:** none

**No. of unit:** 2

**Type:** Theoretical

**General Purpose:** Introduction to the usage of specific drugs related to anesthesia and their effects on different body system.

**Course description:** In this course, students get familiar with effects of drugs, which cause unconsciousness and insensibility, and other drugs used in anesthesia, side effects, drug interactions and their effects on different body systems.

They also learn about methods of preparation, maintenance and necessary points on patient care at the time of prescribing and after that.

**Main topic: 34 Hours**

**Theoretical: 2 units (9hours)**

**Principal reference(s):**

- 1- **Drugs in anesthetic and intensive care practice.** Vickers MD and et al. Latest ed.
- 2- **Anesthesia.** Ronald D. Miller. Latest ed.

**Student assessment practices:** Exam (written) at the end of the course, Seminar, and being active during the course

Title: Principle of anesthesia **04**

**Prerequisite:** Special anatomy and physiology

**No. of unit:** 6 (Theoretical 3 unit – Internship 3 unit)

**Type:** Theoretical - Internship

**General Purpose:** familiarity with general and regional anesthesia, equipment, tools, facility and rules related to anesthesia.

**Course description:** In this course, students become familiar with basic principle about general and regional anesthesia, equipment, tools and, facilities related to anesthesia.

They learn about methods, how to manage patient airways also principle of monitoring different body systems.

**Main topic: 204 Hours**

**Theoretical: 3 units (9hours)**

**Hospital training: 153 Hours**

**Principal reference(s):**

- 1- **Basics of Anesthesia.** Ronald D. Miller. Latest ed.
- 2- **Introduction to Anesthesia.** Dripps & et al. Latest ed.
- 3- **Nurse Anesthesia.** Nagelhout J. & et al. Latest ed.

**Student assessment practices:** Continues evaluation during the course, and end of the course exam.

Title: Introduction to anesthesia methods **05**

**Prerequisite:** Principle of anesthesia

**No. of unit:** 6 (Theoretical 3 unit – Internship 3 unit)

**Type:** Theoretical - Internship

**General Purpose:** Understanding and learning different kind of anesthesia, in case of possible side effects in children, women, the elderly, patient with cardiovascular disease and patient with brain damage and gain necessary ability to take care of patient at different stage of general and regional anesthesia.

**Course description:** In this course, students learn about some common diseases, methods of anesthesia in children, women and gynecology and elderly, they also learn about required equipment and facilities.

Student learn about necessary preparations in patient care at different stage of general and regional anesthesia (before, during and after anesthesia) especially in case of possible side effects.

**Main topic: 204 Hours**

**Theoretical: 2 units (9hours)**

**Hospital training: 153 Hours**

**Principal reference(s):**

- 1- **Basics of anesthesia.** Robert K. Stoelting Ronald D. Miller. Latest ed.
- 2- **Anesthesia and co- Existing disease.** Robert K. Stoelting; Stephen F. Dierdorf. latest ed.
- 3- **Nurse Anesthesia.** Nagelhout J. & et al. Latest ed.

**Student assessment practices:** Continues evaluation during the course, and end of the course exam.



Title: Anesthesia and reanimation **06**

**Prerequisite:** Principle of anesthesia – Introduction to anesthesia methods

**No. of unit:** 6 (Theoretical 4 unit – Internship 4 unit)

**Type:** Theoretical - Internship

**General Purpose:** Student become familiar with principle of anesthesia and reanimation.

**Course description:** In this course, students learn about the function and structure of cell components, the relation between Exon and synapse with anesthesia, about usage anesthesia drugs, principle of guiding analgesia, clinical experience in anesthesia and at last monitoring patient during anesthesia.

**Main topic: 272 Hours**

**Theoretical: 4 units (9hours)**

**Hospital training: 204 Hours**

**Principal reference(s):**

- 1- **Basics of anesthesia.** Robert K. Stoelting Ronald D. Miller. Latest ed.
- 2- **Anesthesia and co- Existing disease.** Robert K. Stoelting; Stephen F. Dierdorf. latest ed.
- 3- **Nurse Anesthesia.** Nagelhout J. & et al. Latest ed.

**Student assessment practices:** Continues evaluation during the course, and end of the course exam.

Title: Principle of intensive care and cardiopulmonary resuscitation methods **07**

**Prerequisite:** Principle of anesthesia

**No. of unit:** 2

**Type:** Theoretical

**General Purpose:** Introducing students to new methods of care, diagnosis and treatment of patients in critical condition, how to use equipment and the management of intensive care unit. (ICU)

**Course description:** In this course, students learn about organization, standards rules and the management of intensive care unit (ICU).

They also learn about usage and maintenance of tools and equipment, diagnostic and treatment methods, care, respiratory, rehabilitation, infection control.

Student even learn about how to care for critically ill patient with disorders of different body systems that need special attention.

**Main topic: 34 Hours**

**Theoretical: 2 units (9hours)**

**Hospital training: 204 Hours**

**Principal reference(s):**

- 1- **The ICU Book.** Robert K. Stoelting; Stephen F. Dierdorf. latest ed.
- 2- **Critical care Hand book of Massachusetts General Hospital.** William E,hurford Latest ed.
- 3- **Basics of Anesthesia.** Robert K. Stocltng, Ronald D. Miller. Latest ed.
- 4- **Respiratory care Equipment.** Richard D. & et al Latest ed.

**Student assessment practices:** Continues evaluation during the course, and end of the course exam.

Title: Hematology and blood transfusion **08**

**Prerequisite:** Principle of anesthesia

**No. of unit:** 2

**Type:** Theoretical

**General Purpose:** Introduction to blood and its products, maintenance of blood and its products and necessary attentions of patient at the time of transfusion and possible side effects.

**Course description:** In this course, students learn about compounds of blood and its components. They will be able to define the importance of blood transfusions and products and explain how to protect it. Student also learn about possible blood transfusion side effect.

**Main topic:** 34 Hours

**Theoretical:** 2 units (9hours)

**Hospital training:** 204 Hours

**Principal reference(s):**

- 1- **Textbook of Blood Banking and Transfusion Medicine.** Rudman. Sally V. latest ed.
- 2- **Modern Blood Banking and Transfusion practices.** Denise M. Harmening. latest ed.
- 3- **Clinical Practice of Transfusion Medicine.** L. D. pet Z.S.N. Swisher. latest ed.

**Student assessment practices:** Continues evaluation during the course, and end of the course exam.

Title: Choosing anesthesia in special surgery **09**

**Prerequisite:** Introduction to anesthesia methods, special anatomy and physiology

**No. of unit:** 4 unit (Theoretical 2 unit – Internship 2 unit)

**Type:** Theoretical – Internship

**General Purpose:** Student learn specific methods of anesthesia in special, sub special surgeries and other diagnostic – therapeutic and necessary capability, and gain the ability to give these patients the care they need.

**Course description:** In this course, students become familiar with methods of preparation and care of patient for general anesthesia, regional anesthesia and using different techniques in anesthetized and revive patients under special and sub special surgeries.

Also, learn about other diagnostic – procedures therapy and gain the ability to give these patients the care they need.

**Main topic: 272 Hours**

**Theoretical: 4 units (9hours)**

**Hospital training: 204 Hours**

**Principal reference(s):**

4- **Basics of anesthesia.** Robert K. Stoelting Ronald D. Miller. Latest ed.

5- **Anesthesia and co- Existing disease.** Robert K. Stoelting; Stephen F. Dierdorf. latest ed.

6- **Nurse Anesthesia.** Nagelhout J. & et al. Latest ed.

**Student assessment practices:** Continues evaluation during the course, and end of the course exam.

Title: Thesis **10**

**Prerequisite:** None

**No. of unit:** 4

**Type:** -

**General Purpose:** Student Engaging student in ascertainment and research in anesthesia area with intention of creating innovation and reduce the complication of anesthesia.

**Course description:** In this course, students must use their information in the field of anesthesia and its complications, with help of various available research and studies and their skills in designing and performing the research according to their country needs, choose a topic for their thesis.

**Student assessment practices:** Hand in a report

Title of the Course: research method **11**

**Prerequisite:** -

**Number of unit:** 2

**Type:** Theoretical

**General Purpose:** increase the level of knowledge of the students in the field of medical sciences  
research methods

At the end of this course students should prepare a proposal includes: identify the problem, to do the paper research, objectives and ...

**Course description:** In this course, students would get knowledge about different methods of research in the field of medical and health sciences.

**Main topic:** 34 Hours

**Theoretical:** 2 units (9hours)

**Principal reference(s):**

- 1- Lumley J. S.P.Benjamin W. "Some Ground Rules" Oxford University Press . Oxford . Last edition
- 2- Abedsaedi Zilla and Amir, Aliakbari Sedeghe, research method in Medical Sciences, Last edition.
- 3- Asefzadeh Saied, mallek afzali Hosien. Ten Steps in research of the Health and Treatment Systems, Tehran, Health, treatment and Medical educations Ministry , Last edition

**Student assessment practices:** continues evaluations during the course, and end of the course exam