

**In the Name of God**  
**Islamic Republic of Iran**  
**Ministry of Health and Medical Education**  
**Deputy Ministry of Education**

**BACHELOR OF SCIENCE IN AESTHESIA**

**Total Course Credits**

- **Core: 130 units**
- **Non-core (Elective):**
- **Dissertation:**
- **Compensatory:**

**Program Description**

Undergraduate anesthesiology is a branch of paramedical sciences in which graduates are familiar with the equipment and facilities, principles and methods of anesthesia, the ability and skills to provide care to patients under anesthesia and regional anesthesia in stages. Before, during and after anesthesia and the provision of care services in acute and chronic pain control units, they obtain medical emergencies and critical condition and provide their services to the community.

**Admission Requirements**

Terms and conditions of admission requirement for the course:

- Student admission will be through both national and centralized entrance examinations.
- Candidates must be in perfect physical and mental health.

**Expected Competencies at the End of the Program**

**Graduates of this course should be able to:**

- Participate effectively and actively with the anesthesia team, acute and chronic pain service, in addition to cardiopulmonary resuscitation team.
- Ensure the health, safety and satisfaction for patients based on appropriate standard.

- Using the necessary capabilities , students are required to prepare and take care of patients, perform a variety of methods of anesthesia, analgesia and cardiopulmonary resuscitation with minimal complications.

### General Competencies\*

1. Professional communication;
  - I. Establish appropriate and professional communication with the patient, colleagues and related officials.
  - II. Appropriate professional interaction with members of the health team, nursing unit, blood bank, radiology, etc.
2. Education-Research:
  - I. Participate in the practical training of anesthesiologists and related service providers.
  - II. Educate the patient before and after anesthesia.
  - III. Cooperation in scientific research approved by official authorities.
3. taking care:
  - I. Record patient information in the file.
  - II. Preparation (cleaning, disinfection, sterilization, calibration), maintenance and use of tools and equipment used according to the relevant standard.
  - III. Participate in patient evaluation and preparation for related actions.
  - IV. Assistance to the anesthesiologist in various stages of regional and systemic anesthesia, maintenance as well as awakening of the patient.
  - V. Participate in anesthesia and pain relief procedures .
  - VI. Participation in the administration of the patient's airway.
  - VII. Care and monitoring of the patient in different stages of anesthesia in various surgeries.
  - VIII. Monitoring of various body systems during and after surgery.
  - IX. Regulation of water and electrolytes, blood transfusion and use of common medications under the supervision of an anesthesiologist.
  - X. Participate in critical treatment with resuscitation team.
  - XI. Monitoring safety tips in the operating room and anesthesia, including: prevention of injuries caused by operating room pollutants, inhaled gases and evaporating materials, explosions, combustion, electric shock and other related injuries.
  - XII. Monitoring possible complications of anesthesia and reporting it to specialists.
4. Procedural skills:
  - I. Permitted practical skills are listed in the attached table.

### Specific Competencies and Skills

Row	Skill	Minimum number of skills to learn			
		View	assistance	independent	Total times
1	Establishing professional communication with the patient, companions, colleagues.	10	10	5	25
2	Preparing and transporting the patient to the operating room.	3	3	3	9
3	Delivery of the patient from the ward to the operating room and vice versa.	3	3	3	9
4	Obtaining a patients history before each anesthesia.	5	5	5	15

5	Control and record vital signs.	10	10	10	30
6	Measuring the level of consciousness based on the Glasgow Coma Scale.	10	5	5	20
7	Patient information file surveillance	5	5	5	15
8	Injections (intravenous, subcutaneous, intradermal and intramuscular).	15	10	10	35
9	Establish a venous route.	10	5	5	20
10	Adjust the infusion rate.	10	10	5	25
11	Intravenous blood draw from the patient.	5	5	5	15
12	Arterial blood draw from the patient.	5	5	-	10
13	Allen test.	5	5	5	15
14	Measuring blood sugar with a glucometer.	5	5	3	13
15	Preparation and administration of medication	10	10	10	30
16	Pharmaceutical calculations.	10	10	15	35
17	Giving medicine to the patient (injectable-non-injectable).	10	10	10	30
18	Control the absorption and excretion of patient fluids.	5	5	5	15
19	Control of blood bag profile and transfusion (blood transfusion).	5	5	5	15
20	Calculate the amount of bleeding.	5	5	5	15
21	Stomach intubation.	5	5	3	13
22	Bladder intubation.	3	3	3	9
23	Dressing and bandaging	5	5	3	13
24	Get a 12-lead heart tape.	5	5	5	15
25	Patient and companion education.	10	10	5	25
26	Checking and monitoring the emergency trolley.	5	5	5	15
27	Disinfection of anesthesia equipment.	10	10	10	30
28	Control and preparation of anesthesia machine.	10	10	10	30
29	Preparation of anesthetic drugs.	10	10	10	30
30	Preparation, use, maintenance and safety of standard anesthesia monitors (blood pressure, pulse, temperature, respiration, pulse oximeter, capnograph).	15	10	10	35

31	Preparation, use, maintenance and safety of advanced monitors include :bis,nerve stimulator,etc	5	5	-	10
32	Prepare the patient and equipment to establish invasive monitors.	5	5	3	13
33	Oxygenation to the patient by spontaneous breathing (face mask, nasal document, venture, ..).	5	5	5	15
34	Laryngoscopy and endotracheal intubation (through the mouth and nose).	10	10	10	30
35	Ventilation using masks and ambo.	5	5	5	15
36	Usage of upper airway tools (oral and nasal airways).	5	5	5	15
37	application a laryngeal airway mask.	5	5	3	13
38	Airway Administration and related maneuvers.	10	10	5	25
39	Preparation of equipment and equipment for difficult piping (fiber optics, etc.).	3	3	2	10
40	airway management.	5	5	-	10
41	Initial setting of anesthesia machine ventilator.	10	5	5	20
42	Central venous pressure measurement.	3	3	2	8
43	Positioning of the patient.	15	10	10	35
44	Evaluation of the patient's pupils	10	10	5	25
45	Patient airway suction.	10	5	10	25
46	Patient evaluation.	15	10	10	35
47	Removing the patient's endotracheal tube.	15	15	10	40
48	Prepare the patient and equipment for local anesthesia.	10	5	5	20
49	Peripheral nerve block.	5	5	-	10
50	Spinal anesthesia procedure	5	5	-	10
51	Epidural anesthesia. procedure	5	5	-	10
52	Kudal numbness.	3	2	-	5
53	Care and monitoring of the patient under regional anesthesia.	10	10	10	30
54	Registration and report (via both paper and electronic methods).	5	5	10	20
55	Oral report.	5	5	10	20
56	Electroshock device preparation.	5	5	5	15

57	Cardiopulmonary resuscitation (adults, children and pregnant women).	5	5	-	10
58	Assess and measure the level of consciousness with appropriate methods.	10	10	10	30

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

- Task based education
- Student and teacher centered education
- Problem based education
- Community oriented education
- Subject based education
- Hospital based education

## **Student Assessment (Methods and Types)**

### **Evaluation method:**

The student will be assessed during the course using the following methods:

- Written exam includes: multiple choice, descriptive, short answer, sortable and etc.
- Oral exam
- Objective structured clinical examination
- Objective structured practical examination
- Direct observational of procedural skills
- Logbook
- Port folio
- Global rating scale
- Multi source feedback

### **Frequency of evaluation:**

- Formative, According to the program of the educational group.
- Summative, According to the school schedule

## **Ethical Considerations\***

- Observe the patients' legal status.
- Strictly follow the regulations related to the protection and safety of patients, staff and the workplace.
- Observe the rules related to dress code.
- Protect the resources and equipment they work with under various circumstances.
- Respect teachers, staff, classmates and learners, patients and their families, and contribute to creating a friendly and respectful atmosphere in the workplace.
- Observe social and professional ethics values in critique of programs.
- conducting research in related to the field, if necessary, observe the research ethics views.

## **Tables of the Courses**

**Table 1. Compensatory Courses**

No.	Course Title	Credits			Teaching Hours			
		Theory	Practical	Total	Theory	Practical	Total	

**Table 2. Core Courses**

No	Title of the Course	Credits			Teaching Hours				prerequisite courses
		Theory	Practical	Total	Theory	Practical	the internship	Total	
01	ANATOMY(1)	1/5	0/5	2	26	17	-	43	-
02	ANATOMY(2)	1/5	0/5	2	26	17	-	43	Anatomy (1) Code 01
03	PHYSIOLOGY(1)	2	-	2	34	-	-	34	-
04	PHYSIOLOGY(2)	2	-	2	34	-	-	34	Physiology(1)code03
05	Medical Physics	1/5	0/5	2	26	17	-	43	-
06	Bacteriology	1/5	0/5	2	26	17	-	43	-
07	Clinical Biochemistry	2	-	2	34	-	-	34	-
08	Immunology	1	-	1	17	-	-	17	-
09	Mental Health	2	-	2	34	-	-	34	-
10	Medical terminology	2	-	2	34	-	-	34	-
11	Medical information systems	1	1	2	17	34	-	51	-

12	Biostatistics	1	-	1	17	-	-	17	Medical information systems11
13	Research Methods in Medical Sciences	2	-	2	34	-	-	34	-
14	Semiotics and clinical examinations	1/5	0/5	2	26	17	-	43	Anatomy(2)code02 Physiology(2)code 04
15	Basic principles of pharmacology	2	-	2	34	-	-	34	Need with physiology (2) code 04
16	medical emergency(1)	1/5	0/5	2	26	17	-	43	Anatomy(2) code 02 Physiology(2)code 04
17	Medical emergency(2)	1/5	0/5	2	26	17	-	43	Medical emergency(1)code 16 Internal diseases-surgery(2)code 20
18	Nursing and operating room skills	2	1	3	34	34	-	68	-
19	Internal diseases-surgery(1)	3	-	3	51	-	-	51	Basic principles of pharmacologycode15  Semiotics and clinical examinations code 14
20	Internal diseases-surgery(2)	2	-	2	34	-	-	34	Internal diseases-surgery(1) code19
21	Hematology and blood bank	1/5	0/5	2	26	17	-	43	PHYSIOLOGY(2)code 04
22	Ethics	1	-	1	17	-	-	17	-
23	Technical language	3	-	3	51	-	-	51	Medical terminology code10 general language
24	Management in anesthesia	1	-	1	17	-	-	17	-
25	Anesthesia equipment	1/5	0/5	2	26	27	-	43	Medical Physics code 05 Need with anesthesia code 26
26	Anesthesia(1)	3	1	4	51	34	-	85	Nursing and operating room skills code 18

									Need with Anesthesia equipment code 25
27	Anesthesia(2)	3	-	3	51	-	-	51	Anesthesia(1) code 26
28	Anesthesia(3)	3	-	3	51	-	-	51	Anesthesia(2) code 27
29	Anesthesia(4)	3	-	3	51	-	-	51	Anesthesia(3) code 28
30	Post-anesthesia care	2	-	2	34	-	-	34	Anesthesia(1) code 26
31	Principles of Intensive Care	3	-	3	51	-	-	51	Basic principles of pharmacology code 15 Internal diseases-surgery(2) code 20
32	Pain management	2	-	2	34	-	-	34	Anesthesia(4) code 29
33	Dedicated pharmacology	2	-	2	34	-	-	34	Basic principles of pharmacology code 15
34	Patient introduction	1	-	1	17	-	-	17	Anesthesia(4) code 29
35	Nursing internship	-	2	2	-	-	102	102	Nursing and operating room skills code 18
36	the internship(1)	-	4	4	-	-	204	204	Nursing internship code 35 Anesthesia(1) code 26
37	the internship(2)	-	4	4	-	-	204	204	the internship(1) code 36
38	the internship(3)	-	4	4	-	-	204	204	the internship(2) code 37
39	the internship(4)	-	4	4	-	-	204	204	the internship(3) code 38
	<b>TOTAL</b>	<b>90</b>							



**Table 3. Non-Core Courses\***

No	Title of the Course	Credits			Teaching Hours		
		Theory	Practical	Total	Theory	Practical	Total

\* Students have to pass..... credits based on their dissertation topics, and approval of their thesis adviser and postgraduate education council.