

# **Faculty of Allied Medical Sciences**

## **Department of Technology of Anesthesia and Resuscitation**

### **Study Plan for the bachelor's degree in Technology of Anesthesia and Resuscitation**

**2020 / 2021**

تحديث 2021-1-11

**Vision**

Excellence in learning and teaching Anesthesia and Resuscitation Technology, Research, and Community Service.

**Mission**

Graduate specialists in Anesthesia and Resuscitation Technology who possess international standards of scientific capabilities and clinical skills in order to meet the needs of national and regional market.

**Program Objectives**

1. Prepare qualified graduates specialized in Anesthesia and Resuscitation Technology in order to meet the need of national and regional market.
2. Accomplish international accreditation standards in teaching/learning Anesthesia and Resuscitation Technology.
3. Continuous enhancement of faculty members performance and competencies in the specialty area of Anesthesia and Resuscitation Technology.
4. Promote students' self-reliant learning skills, communication, and scientific thinking.
5. Application of faculty members and students to scientific research skills, participation in scientific conferences and workshops.
6. Provision of continuing education programs, and training sessions in the specialty area of Anesthesia and Resuscitation Technology.
7. Provision of distinguished levels of academic activities and clinical training for the students in the program of Anesthesia and Resuscitation Technology.
8. Reinforce the use of medical ethics, justice, and equity principles.
9. Encourage community service through voluntary work.

## Programme Learning Outcomes (PLOs)

Learning Domains
<b>1. Knowledge</b>
<b>1.1 Recognize comprehensive knowledge in Human Anatomy, physiology and pathology related to Anaesthesia and Resuscitation Technology.</b>
<b>1.2 Recognize the basic principles in anesthesia and resuscitation technology and their applications.</b>
<b>1.3 Recognize the knowledge and science of all surgical procedures and operating theater systems.</b>
<b>2. Cognitive</b>
<b>2.1 Appraise the critical thinking skills while performing various Anesthetic procedures.</b>
<b>2.2 Diagnose functional problems with preventive aspects and practice evidence-based measures.</b>
<b>3. Interpersonal Skills &amp; Responsibility</b>
<b>3.1 Demonstrate professional and ethical behavior in performing anesthesia and resuscitation responsibilities.</b>
<b>4. Psychomotor</b>
<b>4.1 Apply safety and protective measures while working within anesthesia and resuscitation technology.</b>
<b>4.2 Apply various Anesthetic procedures with privacy and respect to the patient's culture and beliefs.</b>

**1. Framework for Technology of Anesthesia and Resuscitation bachelor's degree (136 Cr. Hrs.)**

Classification	Credit Hours			Percentage
	Compulsory	Elective	Total	
University Requirements	12	12	24	17.65%
Faculty Requirements	21		21	15.45%
Program Requirements	82	6	88	64.7%
Support Courses				0.0%
Free Electives	3	-	3	2.2%
<b>Total</b>	<b>115</b>	<b>21</b>	<b>136</b>	<b>100%</b>

**Course Numbering:**

1	2	0	3	2	1	2	1
Faculty Code		Dept. Code		Course Level		Knowledge Field	Sequence

**Knowledge Areas**

Number	Knowledge Field	Credit Hours
1	Basic and medical sciences	39
2	Fundamental of Anesthesia	17
3	Specialized Anesthesia	17
4	Advanced Applications in Anesthesia and Resuscitation	12
5	Specialized Resuscitation	6
6	Support Sciences	7
7	Clinical Training	8

## 2. University Requirements: (24 Credit Hours)

### 2.1. Compulsory University Requirements: (12Credit Hours)

Course No.	Course Title	Cr. Hr.	Prerequisite	Corequisite
01101101	Military Sciences	3		
01101102	Civic Education	3		
01101111	Arabic Language	3	01100011	
01101112	English Education	3	01100012	
<b>Total</b>		<b>12</b>		

### 2.2. Elective: 12 Credit Hours from the following courses.

Course No.	Course Title	Cr. Hr.	Prerequisite	Corequisite
01101103	Traffic Education	3		-
01101104	Innovation and Entrepreneurship	3		-
01101121	Life Skills	3		-
01101131	Islamic Education	3		-
01101132	Jerusalem and the Hashemite Custodianship	3		-
01101141	Sport and Health	3		-
01101142	Environment and Society	3		-
01101151	Computer Skills	3		01100051
01101152	Internet and Communication	3		-
01101161	Economic Systems and Concepts	3		-
01101171	Psychology and Society	3		-
01101213	Communication Skills in Arabic	3		01101111
01101214	Communication Skills in English	3		01101112
01101243	Safety and First Aid	3		-
01101281	Scientific Research Methods	3		-
01101282	Introduction to Astronomy	3		-
03011101	Law in our Life	3		-
03021201	Human Rights	3		-

### 3. Faculty Requirements: (21 Credit Hours)

#### 3. 1. Compulsory Faculty Requirements: (21 Credit Hours)

Course No.	Course Title	Cr. hr.	Prerequisite	Corequisite
11021205	General Medical Physics	3		
11011281	General Biology	3		
11011282	General Biology (Lab)	1		11011281
12031213	Microbiology	3	11011281	
12011211	Anatomy	3		11011281
12011212	Anatomy (Lab)	1		12011211
12012213	Human physiology	3		12011211
12012214	Human Physiology (Lab)	1	12011213	
05024121	Clinical Biochemistry	3		
05024122	Clinical Biochemistry (Lab)	1	05024121	
<b>Total</b>				

#### 3.2. Faculty Requirements Electives: (..... Credit Hours)

Course No.	Course Title	Cr. hr.	Prerequisite	Corequisite
	N/A			

### 4. Department Requirements (88 Credit Hours)

#### 4. 1. Compulsory Department Requirements: (82 Credit Hours)

Course No.	Course Title	Cr. hr.	Prerequisite	Corequisite
12032115	Pathophysiology	3		
12032121	Introduction to Anesthesia	3		
12034231	Preoperative Assessment & basic investigation	2		
12032211	Physical Assessment of Pt.	3		
12032112	Pharmacology of Anesthesia	4		
12032221	Principles of Airway Management	2		
12033122	Regional Anesthesia	4		
12033141	Clinical Practice I	2		
12032222	Anesthesia Equipment & Supplies I	3		

12033121	Anesthesia Equipment & Supplies II	3		
12032212	Advanced Pharmacology of Anesthesia	4		
12033151	Intensive Care	3		
12032213	Medical Problems and Its Management	3		
12033152	Mechanical Ventilation	3		
12033242	Clinical Practice II	3		
12033231	Preparation for General Surgery	3		
12033243	Clinical Practice III	3		
12033244	Advanced Monitoring	4		
12033233	Anesthesia for Day Surgery	2		
12033232	Anesthesia for Emergency Cases	3		
12034131	Post-Operative Pain Management	3		
12034132	Advanced Anesthesia Techniques	4		
12034191	Clinical Training (1)	4		
12034192	Clinical Training (2)	4		
<b>Total</b>				

#### 4. 2. Department Electives: (6 Credit Hours)

Course No.	Course Title	Cr. hr.	Prerequisite	Corequisite
12031241	Principles of Statistics	3		
12031262	Introduction to Psychology	3		
12031263	Research Methods in Health Sciences	3		
12031264	Medical Terminology	1		
12032265	Pathology	3		
12032266	Pharmacology	3		
12032267	Ethics of Sciences and Technology	2		
12033168	Electrocardiogram	1		
12033269	Special Topics in Anesthesia and Resuscitation	2		
12033261	Principles of Handling Critical Cases	1		
<b>Total</b>				

### 5. Support Courses (... Credit Hours)

Course No.	Course Title	Cr. hr.	Prerequisite	Corequisite
	N/A			

### 6. Free Electives: 3 Credit Hours

Course No.	Course Title	Cr. hr.	Prerequisite	Corequisite
	Any course offered by other departments in the university	3		
<b>Total</b>				

## 7. Study Plan Guide for the bachelor's degree in Technology of Anesthesia and Resuscitation

First Year				
First Term				
Course No.	Course Title	Cr. hrs.	Prerequisite	Corequisite
01101112	English Education	3	01100012	
01101111	Arabic Language	3	01100011	
01101151	Computer Skills	3		
11011281	General Biology	3		
11011282	General Biology (Lab)	1		11011281
05024121	Clinical Biochemistry	3		
05023122	Clinical Biochemistry (Lab)	1		05024121
	<b>Total</b>	<b>17</b>		
Second Term				
Course No.	Course Title	Cr. hrs.	Prerequisite	Corequisite
12011211	Anatomy	3		
12011212	Anatomy (Lab)	1	12011212	
12031213	Microbiology	3		
	University Elective	3		
11021205	General Medical Physics	3		
01101101	Military Sciences	3		
01101102	Civic Education	2		
	<b>Total</b>	<b>18</b>		

Second Year				
First Term				
Course No.	Course Title	Cr. hrs.	Prerequisite	Corequisite
12011213	Human physiology	3		
12011214	Human Physiology (Lab)	1		12011213
12032115	Pathophysiology	3		
12032121	Introduction to Anesthesia	3		
12032112	Pharmacology of Anesthesia	4		
	Specialized Elective	3		
	<b>Total</b>	<b>17</b>		

Second Term				
Course No.	Course Title	Cr. hrs.	Prerequisite	Corequisite
12032211	Physical Assessment of Pt.	3		
12032212	Advanced Pharmacology of Anesthesia	4	12032112	
12032213	Medical Problems and Its Management	3		
12032221	Principles of Airway Management	2		12032211
12032222	Anesthesia Equipment & Supplies I	3	12032121	
	Specialized Elective	2		
	<b>Total</b>	<b>17</b>		

Third Year				
First Term				

Course No.	Course Title	Cr. hrs.	Prerequisite	Corequisite
12033121	Anesthesia Equipment & Supplies II	3		
12033122	Regional Anesthesia	4		
12033141	Clinical Practice I	2		
12033151	Intensive Care	3		
12033152	Mechanical Ventilation	3		
	Specialized Elective	3		
<b>Total</b>		<b>18</b>		

Second Term				
Course No.	Course Title	Cr. hrs.	Prerequisite	Corequisite
12033231	Preparation for General Surgery	3		
12033232	Anesthesia for Emergency Cases	3		
12033233	Anesthesia for Day Surgery	2		
12033244	Advanced Monitoring of Patient	4		
12033242	Clinical Practice II	3		
12033243	Clinical Practice III	3		
<b>Total</b>		<b>18</b>		

Fourth Year				
First Term				
Course No.	Course Title	Cr. hrs.	Prerequisite	Corequisite
12034131	Post-Operative Pain Management	3		
12034132	Advanced Anesthesia Techniques	4		
12034191	Clinical Training (1)	4		
	Specialized Elective	3		
	University Elective	3		
<b>Total</b>		<b>17</b>		
Second Term				

Course No.	Course Title	Cr. hrs.	Prerequisite	Corequisite
12034231	Pre-operative Principles of Assessment	2		
12034292	Clinical Training (2)	4	12034191	
	University Elective	3		
	Specialized Elective	3		
	Free Elective	3		
<b>Total</b>		<b>15</b>		

**Description of Courses offered by the  
Department of Anesthesia and Resuscitation Technology**

**Course Number      Course Name (Prerequisite: -)      (.....) Cr. Hrs**

Course Number	Course Name (prerequisite)	Credit hours
<b>12012115</b>	<b>Pathology</b>	<b>3 س م (0+3)</b>
The mechanism of disease occurrence is identified and includes the identification of the reaction of cells, tissues and organs of the body to the factors causing diseases, the study of the mechanism of occurrence of acute and chronic infections and cancerous diseases, as well as the identification of the mechanism of occurrence of diseases such as diabetes, heart failure, and bronchial asthma. Diseases and symptoms of various body systems, as well as complications resulting from these diseases are also explained.		
<b>12012216</b>	<b>Clinical Psychology</b>	<b>2 س م (0+2)</b>
Mental and psychological illnesses with emphasis on the impact of injuries and disabilities on the condition Psychosocial for patients and the role of health personnel in preparing patients before operations psychologically.		
<b>12011218</b>	<b>Medical ethics</b>	<b>1 س م (0+1)</b>
The rights of the patient, to respect, privacy, integrity and independence in decision-making, patient safety, patient protection law, and the legal responsibility of health personnel for their work in the professional context and an understanding of responsibility and obligations in the event of taking legal medical procedures. Informed consent and confidentiality of information. Legal issues, misconduct and negligence; Risk management, infection control, quality of services and legal aspects, occupational risks, rules of correct medical conduct, liability and accountability, enforcement of standards in health professions to promote quality care; Code of Business Conduct: Relationship with patients, relationship with colleagues, and with other professionals.		
<b>11021205</b>	<b>General Medical Physics</b>	<b>3 س م (0+3)</b>
A practical introduction to the main physical principles applied in anaesthesiology, including physical laws of matter such as gases, liquids, vapor and air, and their applications in work. Knowledge of all types of pressure and related laws and transferring the substance from one state to another, and how to preserve liquids and gases in all their forms, whether they are cylinders or a main compressor.		
<b>11011281</b>	<b>General Biology</b>	<b>3 س م (0+3)</b>
Cell structure, cell chemistry, cellular respiration, photosynthesis, cell communication, cell division, principles of molecular genetics, the genetic code, genetic material replication and reproduction, building proteins, inheriting bacteria and viruses, hormonal regulation in plants and animals, principles Biological classification and basics of ecosystems of living organisms.		
<b>11011282</b>	<b>General Biology Lab</b>	<b>1 س م (3+0)</b>
Cell structures, the chemical components of a living cell and cellular activities (methods of reproduction, enzymatic activities, physical properties, respiration, and photosynthesis). The course also includes the study of plant and animal tissues, the diversity of organisms, and genetics.		
<b>12011211</b>	<b>Human Anatomy</b>	<b>3 س م (0+3)</b>
Introduction to the various scientific terms of anatomy, as well as identifying the types of tissues with the naked eye and at the microscopic level, starting from the cell and the structure of tissues of various types and how they work, as well as studying the anatomy of various organs of the human body, skin and its appendices, bones, muscles, the nervous system, the circulatory system and the heart Respiratory system, urinary, reproductive, and endocrine systems. The course links the anatomy of organs and functions.		
<b>12011212</b>	<b>Human Anatomy Lab</b>	<b>1 س م (3+0)</b>
A practical application to learn about the anatomy of the skin, the musculoskeletal system, the nervous system, the cardiovascular system, the lymphatic system, the respiratory system, and the urinary system.		

11011107	General Chemistry	3 س م (0+3)
Introduction to the measurement of significant numbers, chemical reactions, chemical calculations, gaseous states, thermochemistry, electronic and periodic composition, chemical bonds, molecular shapes, states of matter and the force of attraction between molecules, physical properties of solutions, principles of equilibrium.		
11011108	General Chemistry Lab	1 س م (3+0)
Basic laboratory techniques, determination of the physical and chemical properties of a substance, and how to determine the experimental formulation between compounds.		
12011213	Human Physiology	3 س م (3+2)
The detailed study of the natural physiology of the human body, starting with an introduction to the plan of building and functioning of the traditional human cell and a continuation of an understanding of the electrical membranes of nerves and muscles, as well as an explanation of the mechanism of normal work of the central and decentralized nervous system, the muscular system, and the skeleton , Circulatory system, blood vessels, urinary system, respiratory system, endocrine system, digestive system, and ending with the reproductive system. The role of each of the organs on the integrated balance of the body is also explained and explained.		
09012103	Fundamentals of nursing for students of anesthesia and resuscitation	2 س م (3+1)
Information and skills necessary to assess an individual's health during life stages, apply health assessment based on the approved functional health pattern that affects the individual's health status, and distinguish any change from the normal health status. And the basics of nursing care for surgery patients, the role of responsible health personnel and the conditions related to patient care before the operation (that is, in the evening of the day before the operation) and on the morning of the day of the operation, and until the patient returns to his room. And sterilization techniques.		
12032122	Physics of anesthesia	2 س م (2 +0)
The physics of electronic devices and equipment to monitor the vital signs of patients, how they work, pressure measuring devices or analyzes of blood gases and used evaporators, and how to deal with them in a scientific way, how to maintain and deal quickly in emergency cases. Physics of respiratory devices of all kinds, whether used in operating rooms or intensive care.		
12032223	Pathophysiology of anesthesia	2 س م (2 +0)
Understanding of the pathophysiological foundations of all body systems, how to deal with them before the operation, the possibilities of improving the pathological condition before the operation, dealing with diseases during anesthesia and the surgical procedure, and assessing the state of severity. And dealing with the same cases after completing the process and classifying the admission of cases for appropriate care, whether intensive care or intensive cardiac care ... etc.		
12032241	Internal diseases and anesthesia	3 س م (0+3)
Basic information related to internal diseases, the concepts, rules and regulations that govern the way internal diseases are dealt with before and after surgery, the study of internal diseases about surgical procedures. The student will also learn about the most important internal diseases affecting anesthesia, common internal diseases (such as diabetes, hypertension, obesity, arterial thrombosis) and special diseases related to anesthesia (such as muscle weakness, neuromuscular diseases, and pernicious fever of anesthesia).		
12032111	General pharmacology	3 س م (0+3)

Introduction to general principles of pharmacology, including pharmacokinetics and pharmacodynamics of drugs in general, particularly drugs related to anesthesia, and the intensive care unit, and describes the pharmacokinetics of the drug in special patient groups such as patients with obesity, pregnant women, preterm infants, newborns, and children. Finally, it describes various classes of drugs that act on all body systems, with special attention to anesthetic agents and groups.		
12032211	Pharmacology for anesthesia	3 س (3+2)
The basic and necessary information about drugs, their classifications, their different names, whether scientific or commercial, their work, their absorption and excretion from the body, and how to administer them with a focus on drugs related to anesthesia in terms of composition, negative effect, different doses and poisoning.		
12032212	Advanced Medicines for Anesthesia Technology	3 س م (2+3)
Scientific knowledge about anesthetic drugs, muscle relaxants and invasive inhalants, the science of local and injection anesthesia, anti-vomiting drugs and pain management, sedative drugs for simple and daily cases, Doses according to weight, age, and pathophysiological condition.		
12032121	Introduction to anesthesia technique	3 س م (3+ 0)
The basic information in anesthesia technology, starting with the history of anesthesia globally and locally, and the beginning of the modern history of the science of anesthesia as we know it today, and then knowledge of anesthesia tools and devices such as devices, vaporizers, and others, and how to examine and deal with them scientifically as is also required for monitoring devices. After that, students are taught a prescription for every organ such as the heart, children, brain, nerves, and other different body systems.		
12032212	Principles of preparation for surgery	3 س م (3+2)
The medical preparation of the patient and the necessary examination for the pre-operative situation, which will enable the optimal procedures to be taken before, during and after the operation. It also explains the medical standards that must be met in critical cases, the psychological preparation of the patient for the surgery, the medicinal preparation for the surgery, the laboratory tests required to be available, and the preparation of blood and its derivatives.		
12032221	Basics of Respiratory Therapy and Artificial Respiration	3 س م (3+2)
Basic knowledge of the necessary steps in the treatment of various problems in the airways in their chronic and acute cases, the conditions that need immediate concern and the basis for acting in these circumstances, the causes of respiratory failure, types of artificial respiration, how to perform artificial respiration in emergency respiratory cases And chronic, and care settings for patients undergoing chronic respiration (for example, in cases where the patient suffers from damage to the nerves of the respiratory muscles, inhalation of chemicals, intracranial pressure, or a problem in maintaining an open airway, etc.).		
12033122	Regional local anesthesia	3 س م (3+2)
Introduction to basic knowledge regarding local anesthesia. Concepts, rules, and regulations that control local anesthesia, cases in which local anesthesia is prohibited, and dealing with the patient in the event of a complication of local anesthesia, the use of drugs in addition to the management and control of anesthesia tools, the factors affecting the patient, and the identification of overdose treatment and the role of a student technician Anesthesia in the preparation process.		
12033141	Clinical training 1	3 س م (0+ 9)
This practical course allows to visit the Operations Department and learn about the anesthesia room, operating rooms and recovery rooms and their components, practical handling of anesthesia devices and tools, and how to clean and sterilize them. How to deal with the patient from the moment he arrives and prepares the operating room for the operation until he leaves the operations department. And training in the Department of Intensive Care and dealing with patients and intensive care equipment.		

12032123	Anesthesia technique tools and materials 1	3 س م (0+3)
Basic knowledge regarding anesthesia tools. The way it was built and applied in daily clinical practice, dealing with it in the event of failure during work and maintaining the safety of the patient in all cases. It also explains the way in which these tools are sterilized, preserved and ready for use, and how to deal with the manufacturers.		
12033121	Anesthesia technique tools and materials 2	3 س م (2+ 3)
Knowledge of all the tools that are used in anesthesia, including respirators and devices, monitoring the patient, the anesthesia devices themselves, and how to clean and sterilize them. And knowledge of the basics of its work and periodic patience and making sure of the existence of the necessary parts for the periodic change of devices, and the necessary checks for the periodic devices to ensure that they function properly during anesthesia.		
12033151	Intensive care	3 س م (3+2)
Basic knowledge of the ICU, contents, people, and conditions related to controlling the ICU atmosphere and tools with a special focus on the risks faced by the ICU. It also identifies some medical conditions that require admission to the intensive care unit.		
12032213	Medical problems and their management	2 س م (0+2)
Topics related to identifying risks present in operating rooms, familiarity with the procedures that can be taken to reduce or avoid these risks, biomedical waste management, adherence to professional ethics, commitment to medical ethics, commitment to documenting anesthesia, familiarity with consenting between the two parties to the health service, risks of exposure to gas Medical, familiarity with the topic of risks in the operating room, and the medical risks related to anesthesia.		
12033242	Clinical training 2	3 س م (0+ 9)
Focusing on the operating room and dealing with the patient from the moment he arrives until he leaves the operating room, and training on special skills for that (formulating a solution - analyzing drugs - connecting the patient to monitoring devices, ... etc.). This is in addition to giving the student the opportunity to train in the intensive care department.		
12033243	Clinical training 3	3 س م (0+ 9)
Part (30%) is carried out in two phases in the university laboratory, where training is carried out on the anesthesia apparatus and basic tools in respiratory therapy, basic resuscitation, and intravenous catheter installation, and (70%) in the hospital where what the student learned in the university is applied and applied scientifically and practically and with all safety conditions.		
12033233	Ambulatory anesthesia	3 س م (2 + 3)
Rules for dealing with patients with minor operations, methods of anesthesia, anesthesia for minor operations, conscious sedation in emergency cases, the most important methods of anesthesia to care for them, and appropriate medications for use in different situations and age groups. This course also explains the role of some drugs in the resuscitation process, and resuscitation of newborns and those of different age groups.		
12033232	Anesthesia for emergency operations	3 س م (6+1)
Rules for dealing with patients inside the emergency unit, methods of anesthesia and appropriate medicines for use in these cases, commensurate with the severity of emergency cases and their age groups. This course also explains the full coverage of emergency cases and how to deal with them, emergency surgical cases and how to deal with them, communication with emergency doctors to provide a distinctive service, the most important emergency surgical cases and preparation for them, collective emergencies, methods of classifying them and how to deal with them.		

12033244	<b>Advanced patient monitoring</b>	4 س م (2+6)
Explanation of the fields of knowledge in relation to the following areas: modern and advanced equipment for patient monitoring such as brain monitoring, heart and lung efficiency, basic monitoring and information obtained, level of monitoring of the nervous system and measuring the level of anesthesia level, advanced cardiac monitoring.		
12034131	<b>Treating pain after operations</b>	3 س م (3+2)
Basic knowledge regarding the causes and treatment of acute and chronic pain, the causes of pain after surgery and its management, as well as labor pain and how to deal with it.		
12034132	<b>Advanced anesthesia techniques</b>	4 س م (3+3)
Anesthesia of special cases such as organ transplantation and transplantation, open heart and clinical death diagnosis.		
12034231	<b>Specialist anesthesia</b>	2 س م (2+0)
Explanation of general anesthesia for various conditions - infants and premature infants, the elderly, childbirth, neurosurgery, ear, nose and throat, eyes, tumors, bones, and the complications that each of them faces, and conditions that affect general anesthesia such as alcoholism, obesity and burns. This course also explains anesthesia in cases: heart surgery and cardiac malformations, neurosurgery and spine, gynecology and obstetrics surgery, pediatric and neonatal surgery, vascular surgery and thoracic surgery.		
12034191	<b>Field training 1</b>	4 س م (12+0)
Introduction to basic training that includes the importance of sterilization, how to handle special tools, receive patients and supervise anesthesia. It also explains how to record the medical history, prepare the patient, and how to deal with him during the operation. Emphasis is placed on practice especially when administering medications, clinical monitoring, tools for controlling forms of anesthesia, filling in medical information, name of joint surgeries and diagnosing them in emergencies.		
12034292	<b>Field training 2</b>	4 س م (12+0)
Training to oversee tracheostomy and scheduling information, to enable the student later to perform venous catheterization. It also focuses on training students on how to resuscitate the patient, on ideal post-operative supervision, and how to transfer the patient to the intensive care unit. Providing students with knowledge of the tools used and enabling them to work with them.		
12031262	<b>Microbiology</b>	3 س م (0+3)
Focusing on bacterial germs, their different forms and anatomical parts, methods of their development and identification, and the different methods of controlling their growth through the use of chemical and physical methods, as well as the identification of antibiotics. The course also includes the study of the genetic material in microorganisms and how to use it in the manufacture of some therapeutic products by addressing the principles of biotechnology science.		