



Faculty of Medical Applied Science

Course No. (08.02.821)

2024

I. Course Identification and General Information:

1	Course Title:	Introduction of Anesthesia			
2	Course Code & Number:	08.02.821			
3	Credit Hours:	Credit Hours	Theory Hours		Lab. Hours
		Lecture	Exercise		
		2	2	--	--
4	Study Level/ Semester at which this Course is offered:	Level2 /1 Semester			
5	Pre –Requisite (if any):	No			
6	Co –Requisite (if any):	No			
7	Program (s) in which the Course is Offered:	Program Anesthesia Technician			
8	Language of Teaching the Course:	English			
9	Study System:	Regular (semester)			
10	Mode of Delivery:				
11	Location of Teaching the Course:	University Campus			
12	Prepared by:	Dr. Awad Al-Qabati			
13	Date of Approval:	2024			

Course Description:

An introduction to anesthesia involves understanding its role in pain management and consciousness alteration to facilitate safe and effective medical procedures. Anesthesia can be administered in various forms, including general anesthesia, which affects the whole body, and local anesthesia, which targets specific areas. The field combines principles of pharmacology, physiology of pain, and responses to surgical stress to ensure patient safety and comfort during operations.

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III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)		Referenced PILOs (مخرجات تعلم البرنامج)	
A. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Gives a definition of anesthesia .	A2	Demonstrate the concepts and principles of anesthesia and different basic and humanities courses and its applications in anesthesia practice
a2	explain Core Principles anesthesia and Molecular Structure: Knowledge	A3	Describe normal and abnormal human behaviors, structure and function of human body and identify the basics of intensive care, medical emergencies that the anesthetist and high dependency care units and how to manage patients at risk
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Proficient in critical thinking to solve basic problems in chemistry education	B3	Interpret the basic normal anatomical structures on radiographs, C.T. scans and magnetic resonance images and readings of the standard monitors attached to the patient as well as additional monitors as central venous pressure monitoring.
b2	specifies spectroscopic analysis methods and their synthesis methodologies	B4	Demonstrate competence in the use of language, libraries, and databases and in basic concepts of research methodology and epidemiology and be able to critically analyze relevant published research literature.

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C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Quality Control and Assurance Standard Operating Procedures (SOPs):	C1	Administer a range of assessment techniques, procedures and management appropriate to patient condition and maintain fluid therapy and blood transfusion.
C2	Research and Development - Innovation: A strong foundation in chemistry fosters creativity, allowing technologists to innovate and improve processes or develop new products. - Data Analysis: Skills in interpreting and analyzing scientific data support R&D efforts, enabling careful evaluation of findings and informed decision-making.	C2	Perform an approach to the assessment of risk and need for consultation for an anesthetics, identify appropriate laboratory investigations, pre-medications and fasting guidelines and Set up anesthesia machine and its connections and demonstrate appropriate application and interpretation of commonly used monitors in anesthesia preoperatively
C3	Explains career readiness	C3	Apply the skills necessary for maintaining a patent airway, manual ventilation, intubation and mechanical ventilation. and Perform the proper technique of anesthesia (general, regional or local anesthesia)
C4	Employability: A comprehensive understanding of basic chemistry equips graduates with skills sought by employers in various sectors, leading to increased employment opportunities.	C4	Apply knowledge of drugs, administration techniques and regional anesthesia in the care of acute postoperative pain and chronic pain and Demonstrate an approach to common recovery room problems (eg. pain, nausea, hypotension, and hypertension).
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Adheres to health and safety regulations in the anesthesia profession	D1	Show leadership skills that enable them to organize work and lead the juniors and paramedical staff and work effectively with a team.
D2	Work collaboratively with interdisciplinary teams, including IT specialists, healthcare administrators, and clinicians, to ensure successful implementation and adoption of	D2	Communicate with patients, family, and/or significant others to take history, clinical

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	informatics tools and systems		
D3	Use informatics to support Anesthesia Technician research and evidence-based practice, and contribute to the education of future Anesthesia by teaching informatics competencies.	D3	examination and obtain consent for anesthesia.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
a1	Gives a definition of anesthesia .	Lectures (Traditional Case-Based Learning Simulation-Based Learning Skill Labs	Exams (Formative and Summative) Objective Structured Clinical Examination (OSCE) Simulation-Based Assessment Clinical ▪
a2	explain Core Principles anesthesia and Molecular Structure: Knowledge	Lectures (Traditional Case-Based Learning Simulation-Based Learning Skill Labs	Exams (Formative and Summative) Objective Structured Clinical Examination (OSCE) Simulation-Based Assessment ▪ Clinical

(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
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b1	Proficient in critical thinking to solve basic problems in chemistry education	Problem-Based Learning (PBL) Flipped Classroom Peer Teaching and Group Work	Rotations/Practicum Reflective Journals/Portfolios Peer and Self-Assessment Oral Presentations Examples
b2	specifies spectroscopic analysis methods and their synthesis methodologies	Problem-Based Learning (PBL) Flipped Classroom Peer Teaching and Group Work	Rotations/Practicum Reflective Journals/Portfolios Peer and Self-Assessment Oral Presentations Examples
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
c1	Quality Control and Assurance Standard Operating Procedures (SOPs):	Problem-Based Learning (PBL) Flipped Classroom Peer Teaching and Group Work	Exams (Formative and Summative) Objective Structured Clinical Examination (OSCE) Simulation-Based Assessment Clinical
c2	, Research and Development • Innovation: A strong foundation in chemistry fosters creativity, allowing technologists to innovate and improve processes or develop new products. • Data Analysis: Skills in interpreting and analyzing scientific data support R&D efforts, enabling careful evaluation of findings	Problem-Based Learning (PBL) Flipped Classroom Peer Teaching and Group Work	Exams (Formative and Summative) Objective Structured Clinical Examination (OSCE) Simulation-Based Assessment Clinical

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c3	Explains career readiness •	Problem-Based Learning (PBL) Flipped Classroom Peer Teaching and Group Work	Rotations/Practicum Reflective Journals/Portfolios Peer and Self-Assessment Oral Presentations Examples
c4	Employability: A comprehensive understanding of basic chemistry equips graduates with skills sought by employers in various sectors, leading to increased employment opportunities.	Problem-Based Learning (PBL) Flipped Classroom Peer Teaching and Group Work	Exams (Formative and Summative) Objective Structured Clinical Examination (OSCE) Simulation-Based Assessment Clinical
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
d1	Adheres to health and safety regulations in the anesthesia profession	Lectures (Traditional) Case-Based Learning Simulation-Based Learning Skill Labs Problem-Based Learning (PBL) Flipped Classroom Peer Teaching and Group Work	Exams (Formative and Summative) Objective Structured Clinical Examination (OSCE) Simulation-Based Assessment Clinical ▪
d2	Work collaboratively with interdisciplinary teams, including IT specialists, healthcare administrators, and clinicians, to ensure successful implementation and adoption of informatics tools and systems	Lectures (Traditional) Case-Based Learning Simulation-Based Learning Skill Labs Problem-Based Learning (PBL) Flipped Classroom Peer Teaching and Group Work	Rotations/Practicum Reflective Journals/Portfolios Peer and Self-Assessment Oral Presentations Examples
d3	Use informatics to support Anesthesia Technician research and evidence-	Lectures (Traditional) Case-Based Learning Simulation-Based Learning	Exams (Formative and Summative) Objective Structured

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based practice, and contribute to the education of future Anesthesia by teaching informatics competencies.	Skill Labs Problem-Based Learning (PBL) Flipped Classroom Peer Teaching and Group Work	Clinical Examination (OSCE) Simulation-Based Assessment Clinical
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IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CLOs)
1	Introduction about 1. Anesthesia Machines	Function: Anesthesia machines are critical for the delivery of volatile anesthetic agents and provide oxygen and nitrous oxide to the patient. They also allow for the manual ventilation of the patient's lungs if needed. Components: These machines typically include a vaporizer (to mix anesthetic gases), a ventilator, a gas delivery system, and monitoring systems to track the patient's vital signs. Maintenance: Regular checks are essential to ensure proper functioning and prevent any failures during surgery	2	4	A1
2	2. Ventilators	Function: These devices assist patients in breathing during surgery, managing their ventilation more precisely than manual techniques. Types: Modern ventilators can provide various modes of ventilation, such as assist-control, pressure support, and volume-controlled ventilation,	1	2	a2

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		allowing customization based on patient needs.			
3	3. Monitoring Equipment	Vital Signs Monitors: Continuous monitoring of heart rate, blood pressure, respiratory rate, temperature, and oxygen saturation helps clinicians assess the patient's status in real time. Advanced Monitoring Devices: Some settings utilize transesophageal echocardiography or other advanced monitoring	1	2	b1
4	4. Infusion Pumps	Purpose: These pumps administer medications or fluids intravenously, allowing precise control over the rate and volume of drug administration. Applications: They are often used to deliver anesthetics, analgesics, fluids, and electrolytes during surgery, particularly for patients requiring continuous infusion therapies	2	4	b2
5	5. Endotracheal Tubes and Laryngoscopes	Endotracheal Tubes (ETT): Inserted into the trachea to secure the airway, allowing for mechanical ventilation of the lungs. Laryngoscopes: Instruments used to visualize the vocal cords during intubation. They come in different types, including direct and video laryngoscopes, enhancing the visualization of the airways.	2	4	C1

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6	6. Suction Devices	Importance: Suction devices are used to remove secretions, blood, or vomit from the airway, which is crucial for maintaining airway patency and preventing aspiration. Types: Can include portable suction units or wall-mounted systems, depending on the setting.	1	2	C2.d2
7	7. Regional Anesthesia Equipment	Nerve Stimulators: Used to locate nerves for regional blocks. They deliver small electrical impulses to identify nerves and guide needle placement. Ultrasound Machines: Increasingly used to enhance the accuracy of regional anesthesia techniques by providing real-time imaging of anatomical structures	1	2	C3.d1
		— Mid-Term Theoretical Exam	1	2	
8	8. Carts and Storage Units	Function: Anesthesia carts are organized to provide easy access to medications, equipment, and supplies needed for anesthesia administration. Contents: Typically include emergency drugs, anesthetic agents, syringes, IV supplies, and consumables, ensuring everything is readily available during procedures	2	4	C3.d3.b1
9	9. Emergency Equipment	Crash Carts: Equipped with essential resuscitation supplies, including defibrillators, airway management devices, and emergency drugs (e.g.,	1	2	a2.b2c4.b3

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		epinephrine, atropine). • Readiness: Anesthesia technologists are trained to quickly access and deploy this equipment when emergencies arise.			
10.	Conclusion	Overall, the outcomes of basic sciences in chemistry technology equip students with crucial knowledge, practical skills, and a scientific mindset necessary to excel in various applications and industries. This foundational understanding is vital for addressing current and emerging challenges in technology and science	1	2	d3.c3.d2
11		Final Theoretical Exam	1	2	d3.d2.b2.
Number of Weeks /and Units Per Semester			16	32	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	No			

V. Teaching Strategies of the Course:

Lectures (Traditional
Case-Based Learning
Simulation-Based Learning
Skill Labs
Problem-Based Learning (PBL)
Flipped Classroom
Peer Teaching and Group Work

VI. Assessment Methods of the Course:

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Exams (Formative and Summative)
Objective Structured Clinical Examination (OSCE)
Simulation-Based Assessment
Clinical Rotations/Practicum
Reflective Journals/Portfolios
Peer and Self-Assessment
Oral Presentations
Examples

VII. Assignments:

No.	Assignments	Week Due	Mark	Proportion of Final Assessment	Aligned CILOs (symbols)
1	Attendance and Activities	15th week	5	5%	a1, b2.d2
2	Student assignment	5th and 12th week	5	5%	a1,c2.d2.c4
3	Mid-term exam	7th or 8th week	20	20%	a1, b2.d1.c3
4	Final exam	16th-17th week	70	70 %	C2, .d3.a2.b1.b2.d2
Total			100	100%	

IX. Learning Resources:

- Written in the following order: Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): مثال example

- "Anesthesiology" by Miller's or "Clinical Anesthesia" by Barash et al. provide foundational knowledge and advanced techniques in anesthesia practice.
- Books focusing on specific areas like regional anesthesia, pediatric anesthesia, or pain management can offer detailed insights into advanced practices.

2- Essential References:

- Organizations such as the American Society of Anesthesiologists (ASA) and the European Society of Anaesthesiology and Intensive Care (ESAIC) publish guidelines for clinical practice, including protocols for patient safety, monitoring, and anesthesia

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3- Electronic Materials and Web Sites etc.:

Web Resources

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي)

1	Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration.

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Program Anesthesia Technician

Faculty of Medical Applied Science

Course Specification of Introduction of Anesthesia

Course Specification of introduction

Course No. (08.02.821)

2024

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Course Plan (Syllabus) of Introduction of Anesthesia

I. Course Identification and General Information:

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1	Course Title:	Introduction of Anesthesia			
2	Course Code & Number:	08.02.821			
3	Credit Hours:	Credit Hours	Theory Hours		Lab. Hours
			Lecture	Exercise	
		2	2	--	--
4	Study Level/ Semester at which this Course is offered:	Level4 /2 Semester			
5	Pre –Requisite (if any):	No			
6	Co –Requisite (if any):	No			
7	Program (s) in which the Course is Offered:	Program Anesthesia Technician			
8	Language of Teaching the Course:	English			
9	Study System:	Regular (semester)			
10	Mode of Delivery:				
11	Location of Teaching the Course:	University Campus			
12	Prepared by:	Dr. Awad Al-Qabati			
13	Date of Approval:	2024			

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Course Description:
An introduction to anesthesia involves understanding its role in pain management and consciousness alteration to facilitate safe and effective medical procedures. Anesthesia can be administered in various forms, including general anesthesia, which affects the whole body, and local anesthesia, which targets specific areas. The field combines principles of pharmacology, physiology of pain, and responses to surgical stress to ensure patient safety and comfort during operations

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)	
A. Knowledge and Understanding: Upon successful completion of the course, students will be able to:	
a1	Gives a definition of anesthesia .
a2	explain Core Principles anesthesia and Molecular Structure: Knowledge
B. Intellectual Skills: Upon successful completion of the course, students will be able to:	
b1	Proficient in critical thinking to solve basic problems in chemistry education
b2	specifies spectroscopic analysis methods and their synthesis methodologies
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:	
c1	Quality Control and Assurance Standard Operating Procedures (SOPs):
c2	, Research and Development - Innovation: A strong foundation in chemistry fosters creativity, allowing technologists to innovate and improve processes or develop new products. - Data Analysis: Skills in interpreting and analyzing scientific data support R&D efforts, enabling careful evaluation of findings
c3	Explains career readiness
c4	Employability: A comprehensive understanding of basic chemistry equips graduates with skills sought by employers in various sectors, leading to increased employment opportunities.
D. Transferable Skills: Upon successful completion of the course, students will be able to:	
d1	Adheres to health and safety regulations in the anesthesia profession
d2	Work collaboratively with interdisciplinary teams, including IT specialists, healthcare administrators, and clinicians, to ensure successful implementation and adoption of informatics tools and systems

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d3	Use informatics to support Anesthesia Technician research and evidence-based practice, and contribute to the education of future Anesthesia by teaching informatics competencies.
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IV. Course Contents:					
A. Theoretical Aspect:					
No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CLOs)
1	Introduction about 1. Anesthesia Machines	Function: Anesthesia machines are critical for the delivery of volatile anesthetic agents and provide oxygen and nitrous oxide to the patient. They also allow for the manual ventilation of the patient's lungs if needed. Components: These machines typically include a vaporizer (to mix anesthetic gases), a ventilator, a gas delivery system, and monitoring systems to track the patient's vital signs. Maintenance: Regular checks are essential to ensure proper functioning and prevent any failures during surgery	2	4	A1
2	2. Ventilators	Function: These devices assist patients in breathing during surgery, managing their ventilation more precisely than manual techniques. Types: Modern ventilators can provide various modes of ventilation, such as assist-control, pressure support, and volume-controlled ventilation, allowing customization based on	1	2	a2

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		patient needs.			
3	3. Monitoring Equipment	Vital Signs Monitors: Continuous monitoring of heart rate, blood pressure, respiratory rate, temperature, and oxygen saturation helps clinicians assess the patient's status in real time. Advanced Monitoring Devices: Some settings utilize transesophageal echocardiography or other advanced monitoring	1	2	b1
4	4. Infusion Pumps	Purpose: These pumps administer medications or fluids intravenously, allowing precise control over the rate and volume of drug administration. Applications: They are often used to deliver anesthetics, analgesics, fluids, and electrolytes during surgery, particularly for patients requiring continuous infusion therapies	2	4	b2
5	5. Endotracheal Tubes and Laryngoscopes	Endotracheal Tubes (ETT): Inserted into the trachea to secure the airway, allowing for mechanical ventilation of the lungs. Laryngoscopes: Instruments used to visualize the vocal cords during intubation. They come in different types, including direct and video laryngoscopes, enhancing the visualization of the airways.	2	4	C1

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6	6. Suction Devices	Importance: Suction devices are used to remove secretions, blood, or vomit from the airway, which is crucial for maintaining airway patency and preventing aspiration. Types: Can include portable suction units or wall-mounted systems, depending on the setting.	1	2	C2.d2
7	7. Regional Anesthesia Equipment	Nerve Stimulators: Used to locate nerves for regional blocks. They deliver small electrical impulses to identify nerves and guide needle placement. Ultrasound Machines: Increasingly used to enhance the accuracy of regional anesthesia techniques by providing real-time imaging of anatomical structures	1	2	C3.d1
		— Mid-Term Theoretical Exam	1	2	
8	8. Carts and Storage Units	Function: Anesthesia carts are organized to provide easy access to medications, equipment, and supplies needed for anesthesia administration. Contents: Typically include emergency drugs, anesthetic agents, syringes, IV supplies, and consumables, ensuring everything is readily available during procedures	2	4	C3.d3.b1
9	9. Emergency	Crash Carts: Equipped with essential resuscitation supplies, including defibrillators, airway	1	2	a2.b2c4.b3

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	Equipment	management devices, and emergency drugs (e.g., epinephrine, atropine). • Readiness: Anesthesia technologists are trained to quickly access and deploy this equipment when emergencies arise.			
10.	Conclusion	Overall, the outcomes of basic sciences in chemistry technology equip students with crucial knowledge, practical skills, and a scientific mindset necessary to excel in various applications and industries. This foundational understanding is vital for addressing current and emerging challenges in technology and science	1	2	d3.c3.d2
11		Final Theoretical Exam	1	2	d3.d2.b2.
Number of Weeks /and Units Per Semester			16	32	
B. Case Studies and Practical Aspect:					
No.	Tasks/ Experiments			Number of Weeks	Contact Hours
8	- no				
Number of Weeks /and Units Per Semester				15	30

V. Teaching Strategies of the Course:

Lectures (Traditional
Case-Based Learning
Simulation-Based Learning
Skill Labs
Problem-Based Learning (PBL)
Flipped Classroom
Peer Teaching and Group Work

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VI. Assessment Methods of the Course:

Exams (Formative and Summative)
Objective Structured Clinical Examination (OSCE)
Simulation-Based Assessment
Clinical Rotations/Practicum
Reflective Journals/Portfolios
Peer and Self-Assessment
Oral Presentations
Examples

VII. Assignments:

No.	Assignments	Week Due	Mark	Proportion of Final Assessment	Aligned CILOs (symbols)
1	Attendance and Activities	15th week	5	5%	a1, b2.d2
2	Student assignment	5th and 12th week	5	5%	a1,c2.d2.c4
3	Mid-term exam	7th or 8th week	20	20%	a1, b2.d1.c3
4	Final exam	16th-17th week	70	70 %	C2, .d3.a2.b1.b2.d2
Total			100	100%	

IX. Learning Resources:

- Written in the following order: Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): مثال example

- "Anesthesiology" by Miller's or "Clinical Anesthesia" by Barash et al. provide foundational knowledge and advanced techniques in anesthesia practice.
- Books focusing on specific areas like regional anesthesia, pediatric anesthesia, or pain management can offer detailed insights into advanced practices.

2- Essential References:

- Organizations such as the American Society of Anesthesiologists (ASA) and the European Society of Anaesthesiology and Intensive Care (ESAIC) publish guidelines for clinical practice, including protocols for patient safety, monitoring, and anesthesia

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3- Electronic Materials and Web Sites etc.:
Web Resources

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي)	
1	Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration.

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