



جامعة الإمام عبد الرحمن بن فيصل  
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY  
كلية العلوم الطبية التطبيقية بالجبيل  
College of Applied Medical Sciences in Jubail

# Anesthesia Technology Program Students Handbook

برنامج تقنية التخدير  
كتيب الطالبات

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## Table of Content

| <b>Subject</b>                   | <b>Page</b> |
|----------------------------------|-------------|
| Program History                  | 3           |
| Program Organizational Structure | 4           |
| Vision, Mission & Values         | 5           |
| Expected Outcomes                | 5           |
| Program Goals                    | 6           |
| Program Learning Outcomes        | 6           |
| Program Graduate Attributes      | 7           |
| Program Admission Requirements   | 7           |
| Faculty and Specialists*         | 8           |
| Program Study Plan               | 9           |
| Course Descriptions              | 16          |
| Internship Program               | 26          |
| Teaching and Learning Strategies | 27          |
| Assessment Methods               | 27          |
| Academic Advisory                | 28          |
| Extracurricular Activities       | 29          |
| Graduation Requirements          | 30          |
| Employment Opportunities         | 30          |
| Alumni                           | 31          |

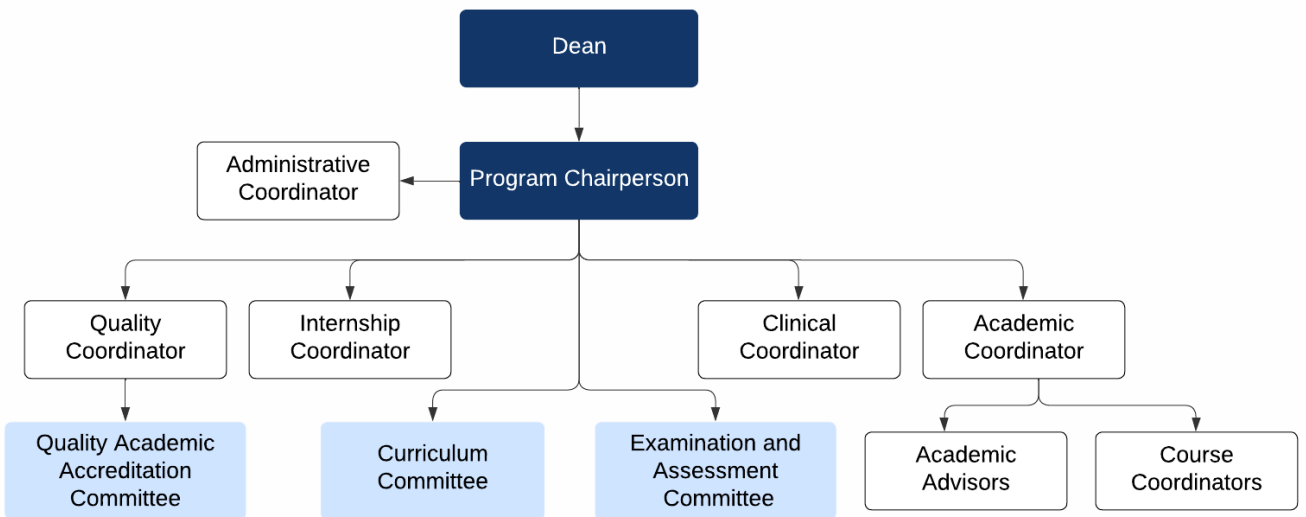
### **Program History**

The Anesthesia Technology Program at the College of Applied Medical Sciences in Jubail (CAMSJ) was founded in 2017 with the goal of equipping aspiring Anesthesia Technologists with the knowledge and skills necessary to excel in their field. Through a comprehensive curriculum that covers cognitive, psychomotor, and affective domains, students are prepared to assist physicians in a wide range of clinical and surgical procedures, both simple and complex.

The program emphasizes the use of anesthesia tools, materials, and equipment to ensure safe and efficient patient care before, during, and after surgical operations, labor and delivery units, outpatient procedure suites, ambulatory surgery centers, and emergency rooms. Students receive thorough training through a combination of lectures, seminars, laboratory sessions, and clinical experience.

To further prepare students for the demands of the medical world, the program includes a one-year internship. This internship provides students with invaluable hands-on experience and helps them develop the confidence and professionalism required to succeed in their career. Overall, the Anesthesia Technology Program at CAMSJ is dedicated to producing highly skilled and competent Anesthesia Technologists who can make a positive impact on the lives of patients.

## Program Organizational Structure



## Vision, Mission & Values

### Vision

To develop an academic program that will graduate exceptional Anesthesia Technologists that will contribute significantly towards the society and influence the profession through gained skills of leadership, and research collaboration.

### Mission

To graduate highly competent Anesthesia Technologists that possess knowledge, skills and ethical values dedicated to serve the community and scientific research .

### Values

- Accountability
- Social Responsibility
- Collaboration
- Transparency
- Excellence
- Innovation
- Diversity
- Compassion

## Expected Outcomes

### Academic

Acquire advanced understanding and knowledge necessary to incorporate theoretical aspects with clinical data in order to formulate comprehensive personalized patient care plans.

### Clinical

Exhibit the ability to skillfully and safely plan and administer anesthetics, based on knowledge and understanding of anesthesia principles.

### Research

Demonstrate the ability to conduct research providing the community with advanced and improved applications to clinical practices allowing professional growth.

### Professionalism

Integrate Islamic, ethical, and legal values during clinical practice.

## Program Goals

- Goal 1: Provide high quality education in Anesthesia Technology
- Goal 2: Utilize highly qualified and diverse health professionals
- Goal 3: Foster a culture of scientific inquiry and research
- Goal 4: Engage with the community to promote strategic partnerships

## Program Learning Outcomes

### KNOWLEDGE

- Describe the principles and theories of applied biomedical sciences in pharmacology, sterilization, monitoring, instrumentation, and anesthesia equipment.
- 1.1
- 1.2 Recognize normal anatomic and physiologic conditions and pathophysiological features of various clinical conditions.
- 1.3 Outline the influence of diverse cultural, sociological, ethical, religious beliefs in the health care and provision of anesthesia management.

### SKILLS

- Integrate principles of anesthesia using critical thinking, analytical, problem solving, and decision-making skills to develop effective anesthesia management plans.
- 2.1
- 2.2 Apply physical principles and theories to operate and troubleshoot anesthesia machines, monitoring devices, and other auxiliary equipment.
- 2.3 Exhibit quantitative and qualitative skills to gather data to efficiently and effectively perform research.
- 2.4 Demonstrate competency in the utilization of anesthesia equipment. Perform procedures to evaluate patient needs, and ways to administer anesthesia.
- 2.5 Utilize information technology effectively to manage, and communicate health care data.

### VALUES

- 3.1 Adopt the role of a competent, accountable, and empathic Anesthesia Technologist as a health care team member in a variety of healthcare settings.
- 3.2 Demonstrate active participation in community awareness of anesthesia management.

## Program Graduate Attributes

AT program graduate attributes (GAs) are aligned with IAU GAs. AT GAs are as follow:

1. Commits to the Islamic identity demonstrating ethical, legal, and cultural values
2. Demonstrates social responsibility
3. Engages in continuous learning and development within the field of AT
4. Exhibits professionalism and effective communication skills.
5. Assumes leadership roles and characteristics with an ability to encourage and collaborate with team members.
6. Demonstrates initiative and determination.
7. Exercises critical thinking and problem-solving skills.
8. Employs digital, numerical and information technology towards the field of AT.

## Program Admission Requirements

The student must successfully pass the preparatory year. The University Council determines the number of students to be admitted based on the recommendations presented by the College Council. Program acceptance is based on available vacancies and GPA.

Refer to Rules and regulation link from Imam Abdulrahman bin Faisal University by logging onto the website <https://admitportal.iau.edu.sa/web/>

## Faculty and Specialists\*

| Name                              | Position/Rank                                  | Email  |
|-----------------------------------|--|--|
| Dr. Lamyia Zohair Yamani          | Department Chairperson/<br>Assistant Professor | <a href="mailto:lzyamani@iau.edu.sa">lzyamani@iau.edu.sa</a>         |
| Prof. Manoj Goyal Goyal           | Professor                                      | <a href="mailto:mggoyal@iau.edu.sa">mggoyal@iau.edu.sa</a>           |
| Dr. Khalid Mohamad Ibraheem       | Program Coordinator/<br>Associate Professor    | <a href="mailto:kmibraheem@iau.edu.sa">kmibraheem@iau.edu.sa</a>     |
| Dr. Fazil Ahmad                   | Assistant Professor                            | <a href="mailto:fmahmad@iau.edu.sa">fmahmad@iau.edu.sa</a>           |
| Mrs. Amal Matoon Sobahi           | Demonstrator                                   | <a href="mailto:amsobahi@iau.edu.sa">amsobahi@iau.edu.sa</a>         |
| Mrs. Nora Yousef Ahmed Alhannoush | Demonstrator                                   | <a href="mailto:nyalhannoush@iau.edu.sa">nyalhannoush@iau.edu.sa</a> |
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| Ms. Nourah Mutlaq AlOtaibi        | Demonstrator                                   | <a href="mailto:nmsalotaibi@iau.edu.sa">nmsalotaibi@iau.edu.sa</a>   |
| Mr. Abdulrahman Athwan AlQarni    | Demonstrator                                   | <a href="mailto:aaaalqarni@iau.edu.sa">aaaalqarni@iau.edu.sa</a>     |
| Ms. Bushra Hammad AlShammari      | Clinical Instructor                            | <a href="mailto:bhalshammari@iau.edu.sa">bhalshammari@iau.edu.sa</a> |

\* Kindly refer to the [CAMSJ faculty website](#) for additional information and the latest updates on the Anesthesia Technology program.



## Program Study Plan

### Level 1

| No.                 | Course Title               | Course Code | Credit Units | Contact Hours |           |                | Prerequisite |
|---------------------|----------------------------|-------------|--------------|---------------|-----------|----------------|--------------|
|                     |                            |             |              | Theory        | Practical | Field Training |              |
| 1                   | General English Language 1 | ENGL 101    | 4            | 0             | 16        | NA             | NA           |
| 2                   | Biology 1                  | BIOL 105    | 3            | 2             | 2         | NA             | NA           |
| 3                   | Physics                    | PHYS 106    | 3            | 2             | 2         | NA             | NA           |
| 4                   | Computer Skills            | COMP107     | 3            | 2             | 2         | NA             | NA           |
| 5                   | Arabic Language Skills     | ARAB 182    | 2            | 2             | 0         | NA             | NA           |
| Total Credit Units  |                            |             |              | 15            |           |                |              |
| Total Contact Hours |                            |             |              | 30            |           |                |              |

### Level 2

| No.                 | Course Title                              | Course Code | Credit Units | Contact Hours |           |                | Prerequisite |
|---------------------|---|-------------|--------------|---------------|-----------|----------------|--------------|
|                     |   |             |              | Theory        | Practical | Field Training |              |
| 1                   | General English Language 2                | ENGL 102    | 3            | 0             | 10        | NA             | NA           |
| 2                   | English for Academic and Specific Purpose | ENGL 103    | 3            | 0             | 6         | NA             | NA           |
| 3                   | Biology 2                                 | BIOL 108    | 3            | 2             | 2         | NA             | NA           |
| 4                   | Chemistry                                 | CHEM 109    | 3            | 2             | 2         | NA             | NA           |
| 5                   | Learning and Searching Skills             | LRSK 104    | 2            | 2             | 0         | NA             | NA           |
| 6                   | Creed and Family in Islam                 | ISLM 181    | 2            | 2             | 0         | NA             | NA           |
| Total Credit Units  |   |             |              | 16            |           |                |              |
| Total Contact Hours |   |             |              | 28            |           |                |              |

“IP” in credit units is for course completing in the next semester

## Program Study Plan

### Level 3

| No.                 | Course Title                                     | Course Code | Credit Units | Contact Hours |           |                | Prerequisite |
|---------------------|--|-------------|--------------|---------------|-----------|----------------|--------------|
|                     |  |             |              | Theory        | Practical | Field Training |              |
| 1                   | Introduction to Anesthesia Technology Profession | ANEST 201   | 3            | 2             | 2         | NA             | NA           |
| 2                   | General Pharmacology                             | PHARM 202   | 3            | 3             | 0         | NA             | NA           |
| 3                   | Anatomy  | ANAT 231    | 3            | 2             | 2         | NA             | NA           |
| 4                   | Physiology                                       | PHYL 232    | 3            | 2             | 2         | NA             | NA           |
| 5                   | Microbiology and Infection Control               | MICRO 233   | 2            | 2             | 0         | NA             | NA           |
| 6                   | Islamic Ethics and Values                        | ISLM 282    | 2            | 2             | 0         | NA             | NA           |
| Total Credit Units  |  |             |              | 16            |           |                |              |
| Total Contact Hours |  |             |              | 19            |           |                |              |

## Program Study Plan

### Level 4

| No.                        | Course Title  | Course Code | Credit Units | Contact Hours |           |                | Prerequisite                         |
|----------------------------|---|-------------|--------------|---------------|-----------|----------------|--------------------------------------|
|                            |   |             |              | Theory        | Practical | Field Training |                                      |
| 1                          | Cardiopulmonary Anatomy and Physiology              | ANPS 207    | 3            | 2             | 2         | NA             | ANAT 231<br>PHYL 232                 |
| 2                          | Airway Management                                   | ANEST 208   | 3            | 2             | 2         | NA             | Corequisites<br>ANPS 207             |
| 3                          | Anesthetic Pharmacology                             | PHARM 209   | 2            | 2             | 0         | NA             | Prerequisites<br>PHARM 202           |
| 4                          | Physics for Anesthesia                              | PHYS 210    | 3            | 2             | 2         | NA             | Prerequisites<br>ANEST 201           |
| 5                          | Anesthesia Equipment and Workstations               | ANEST 211   | 3            | 2             | 2         | NA             | Corequisites<br>ANPS 207<br>PHYS 210 |
| 6                          | History and Civilization of Kingdom of Saudi Arabia | HIST 281    | 2            | 2             | 0         | NA             | NA                                   |
| <b>Total Credit Units</b>  |   |             |              |               |           |                | 16                                   |
| <b>Total Contact Hours</b> |   |             |              |               |           |                | 20                                   |

## Program Study Plan

### Level 5

| No.                        | Course Title   | Course Code | Credit Units | Contact Hours |           |                | Prerequisite  |
|----------------------------|--|-------------|--------------|---------------|-----------|----------------|---|
|                            |  |             |              | Theory        | Practical | Field Training |   |
| 1                          | Perioperative Anesthesia Management                  | ANEST 301   | 4            | 3             | 2         | 0              | ANPS 207  |
| 2                          | Clinical Monitoring in Anesthesia                    | ANEST 303   | 3            | 2             | 2         | 0              | ANPS 207<br>PHYS 210<br>PHARM 209                             |
| 3                          | Anesthetic Management for Surgeries and Procedures 1 | ANEST 303   | 4            | 3             | 2         | 0              | Coerequisites<br>ANEST 301                                    |
| 4                          | Clinical Anesthesia Practice 1                       | ANEST 304   | 3            | 0             | 0         | 9              | ANEST 208<br>ANEST 211<br>Coerequisites ANEST 303<br>ANEST301 |
| 5                          | Biostatics   | STAT 331    | 2            | 2             | 0         | 0              | NA  |
| 6                          | Medical Ethics                                       | ETHIC 332   | 2            | 2             | 0         | 0              | NA  |
| <b>Total Credit Units</b>  |  |             |              | <b>18</b>     |           |                |   |
| <b>Total Contact Hours</b> |  |             |              | <b>27</b>     |           |                |   |

## Program Study Plan

### Level 6

| No.                        | Course Title   | Course Code | Credit Units | Contact Hours |           |                | Prerequisite  |
|----------------------------|--|-------------|--------------|---------------|-----------|----------------|---|
|                            |  |             |              | Theory        | Practical | Field Training |   |
| 1                          | Anesthetic Management For Surgeries and Procedures 2 | ANEST 307   | 4            | 3             | 2         | 0              | ANEST 301<br>ANEST 303                              |
| 2                          | Anesthesia for Patients with Coexisting Diseases     | ANEST 308   | 3            | 3             | 0         | 0              | ANEST 301   |
| 3                          | Clinical Anesthesia Practice 2                       | ANEST 309   | 3            | 0             | 0         | 9              | ANEST 304<br>Corequisites<br>ANEST 307<br>ANEST 311 |
| 4                          | Artificial Intelligence in Anesthesia Technology     | ARTI 310    | 2            | 1             | 2         | 0              | NA  |
| 5                          | Regional Anesthesia and Pain Management              | ANEST 311   | 3            | 2             | 2         | 0              | ANEST 302   |
| 6                          | Research Methodology                                 | RESM 334    | 2            | 2             | 0         | 0              | STAT 331  |
| <b>Total Credit Units</b>  |  |             |              | 17            |           |                |   |
| <b>Total Contact Hours</b> |  |             |              | 26            |           |                |   |

## Program Study Plan

### Level 7

| No.                        | Course Title   | Course Code | Credit Units | Contact Hours |           |                | Prerequisite                        |
|----------------------------|--|-------------|--------------|---------------|-----------|----------------|-------------------------------------|
|                            |  |             |              | Theory        | Practical | Field Training |                                     |
| 1                          | Anesthetic Management for Surgeries and Procedures 3 | ANEST 401   | 4            | 3             | 2         | 0              | ANEST 307<br>ANEST 308              |
| 2                          | Recovery and Anesthesia Related Complications        | ANEST 402   | 3            | 2             | 2         | 0              | ANEST 308<br>ANEST 309              |
| 3                          | Clinical Anesthesia Practice 3                       | ANEST 403   | 3            | 0             | 0         | 9              | Corequisites ANEST 401<br>ANEST 402 |
| 4                          | Research Project                                     | ANEST 404   | IP           | 0             | 2         | 6              | RESM 334                            |
| 5                          | Introduction to Health Informatics                   | HIMT 431    | 2            | 2             | 0         | 0              | NA                                  |
| 6                          | Behavioral Science                                   | PSYCO       | 2            | 2             | 0         | 0              | NA                                  |
| <b>Total Credit Units</b>  |  |             |              | 14            |           |                |                                     |
| <b>Total Contact Hours</b> |  |             |              | 22            |           |                |                                     |

## Program Study Plan

### Level 8

| No.                 | Course Title                            | Course Code | Credit Units | Contact Hours |           |                | Prerequisite |
|---------------------|---|-------------|--------------|---------------|-----------|----------------|--------------|
|                     |   |             |              | Theory        | Practical | Field Training |              |
| 1                   | Anesthesia Seminars                     | ANEST 407   | 4            | 2             | 4         | 0              | Pass Level 7 |
| 2                   | Critical Care and Emergency Medicine    | ANEST 408   | 2            | 2             | 0         | 0              | ANEST 402    |
| 3                   | Clinical Anesthesia Practice 4          | ANEST 409   | 3            | 0             | 0         | 9              | ANEST 403    |
| 4                   | Research Project                        | ANEST 404   | 3            | 0             | 2         | 6              | RESM 334     |
| 5                   | Management in Health Care Organizations | MGMT 411    | 2            | 2             | 0         | 0              | NA           |
| 6                   | Entrepreneurship                        | BUS 381     | 2            | 2             | 0         | 0              | NA           |
| Total Credit Units  |   |             |              | 16            |           |                |              |
| Total Contact Hours |   |             |              | 29            |           |                |              |

## Courses Description

### First Year

- **General English Language (ENG 101)**

The purpose of this course is to build a comprehensive foundation of understanding about the process which will form the basis for connecting subsequent course work to the practice of the language in reading, writing and listening, both orally and in writing.

- **Biology (BIOL 105)**

The course is designed to introduce students to the major discipline of the biology. It begins with an Introduction to the properties of the living and nonliving things. The course covers aspects of cell structure, cell membrane, transport processes, in and out of the cell as well as cell division.

- **Chemistry (CHEM 109)**

This course covers the basic concepts, matter, units of the measurement, equations, atomic and molecular weights, chemical calculations, structure of the atom, periodic properties of the element, chemical bonding and molecular geometry, reactions in solutions and their calculations, gases, acids and bases.

- **Physics (PHYS 106)**

This course aims to enable the students to understand the basic physical principles and their relations to the daily life activities, especially to those related to the future career of the students and to develop scientific thinking in all aspects of the student's life.

- **Health and Physical Education (PHEDU 162)**

This course shows the importance of sports and its impact on human health and how playing sports helps to maintain human health

- **Creed and Family in Islam (ISLM 181)**

The course deals with defining the Islamic faith, naming the ranks of religion, and the pillars of faith: belief in God Almighty, His angels, His books, His messengers, the Last Day, and destiny, warning against the contradictions and shortcomings of faith, defining the rights of Ahl al-Bayt, the Companions, and the ruler, liberalizing the meaning of loyalty and disobedience, clarifying the concept of the family, its rulings, and building it. Clarifying the purposes of marriage, and the consequent family rights, and the differences between them, understanding the means of protection for the family, ways to end the marital relationship, Islam empowering women, and discussing some contemporary issues.



## Courses Description

- **Computer Skills (COMO 107)**

This course is designed to give nursing track students the fundamental concepts and operations necessary to use computers. Students will become familiar with the basic principles of computer system, including the hardware and software. It will also give students the confidence and skills to use key applications such as presentations (PowerPoint) and spreadsheets (Excel), as well as understanding social and ethical issues around the network, Internet, information, security, Cloud, and Health Information Systems (HIS).

- **Learning and Searching Skills (LRSK 104)**

This course is designed to help new students in the college of Applied Medical Science develop basic skills needed to successfully complete their training. These skills consist, mainly, of effective reading, note taking, stress and time management, memory building, presentation skills, and preparing for exams. Students will be given the chance to apply these skills in their first biology course. This training will help the students perform better academically. The techniques learned in this first course will be applied to other courses as well.

- **Arabic Language Skills (ARAB 182)**

The course focuses on four main axes: discussing the problems of practicing the Arabic language, speaking and writing, writing and spelling rules, language skills through the study of texts, and applied skills in the Arabic language.

- **English for Academic and Specific Purpose (ENG 102)**

The purpose of this course is to build a comprehensive foundation of understanding medical terminology about the process which will form the basis for connecting subsequent course work to the practice of the language in reading, writing and listening, both orally and in writing.

- **Communication Skills (LRSK 142)**

This course is designed to help students acquire and develop important study and skills that are required to achieve greater success in their university life. It will cover core study skills topics that are interlinked and provide students with essential strategies and practical skills necessary for their success at university.

In addition, the course will cover covers the main communication skills that are essential for developing and improving students' communications' effectiveness as well as their awareness of the importance of communication in their personal, academic and professional life. It will engage students in practical activities (presentations and roleplays) which provide them with opportunities to apply effective communication strategies, assess themselves and improve their skills.

## Courses Description

### Second Year (Level 3)

- **Microbiology and Infection Control (MICRO 233)**

The course will introduce the students to the basic microbiology concepts with emphasis on common infectious diseases, immune system and immune response, antibiotics, antimicrobial resistance, vaccination, infection control, and sterilization. It will use this knowledge to provide safe patient care and promote infection control in healthcare facilities

- **Introduction to Anesthesia Technology Profession (ANEST 201)**

This course provides a brief, broad overview of the science and practice of anesthesia and creates a bond between the students and their specialty by explaining the history of surgical practice before anesthesia and the evolution in surgical practice and patient care as a result of introduction and evolution in anesthetic practice. The course illustrates the role of anesthesia technologists in the patient care team and encourages and invites students to explore the updates in anesthesia as a dynamic field of practice.

- **Anatomy (ANAT 231)**

This course provides general scientific knowledge concerning the normal structure of human body systems. In addition, it gives basic knowledge about surface markings and radiological anatomy of the important structures and skeleton. It also provides basic principles for understanding some clinical findings in relation to anatomical basis.

- **Physiology (PHYL 232)**

This course provides the student with basic knowledge of the normal function of the human body and what takes place when disease or illness disrupts the normal processes. Basic aim is to highlight the relationship between systems and how they help to maintain the functioning of the whole body. Special emphasis is laid on homeostasis and the control systems that maintain it.

- **Islamic Ethics and Values (ISLM 282)**

This course covers the virtuous ethics and moral values, its legitimate origins from the holy Quran and Sunnah, common sense agreeance, moderation and society identity, and relevant skill-building and practical activities. In addition, it aims to achieve the ethics and morals construction of the student's personality, identifying its impact on individual and society's behaviors, finding solutions for society's problems related to ethics and morals, and applying the student's acquired knowledge into practical reality.

### Courses Description

- **General Pharmacology (PHARM 202)**

This course introduces the student to understand the basic principles of pharmacology, its terminology and the systems set to control and promote safety and quality of drug use. In addition, students will be able to understand the mechanisms of drug action and to appreciate the principles of pharmacokinetics and the mechanisms underlying adverse drug reactions, interactions and toxicities. Students will also be introduced to the mechanisms and side effects of drugs acting on various systems, such as, the autonomic nervous system, cardiovascular system, gastrointestinal tract, endocrine system.

#### Second Year (Level 4)

- **Cardiopulmonary Anatomy and Physiology (ANEST 207)**

This course provides the students with the necessary knowledge of cardiopulmonary anatomy and physiology that is required as a foundation for the comprehensive curriculum of Anesthesia Technology. Emphasis is made on ventilation and perfusion, diffusion and transport, pulmonary function, hemodynamic measurements, and central nervous system control of ventilation. Cardiac and pulmonary physiological processes are related in this course to clinical practice at an introductory level and the basic concepts of mechanical ventilation are introduced

- **History and Civilization of KSA (HIST 281)**

This course shows historical and civilizational aspects of the Kingdom of Saudi Arabia and its cultural heritage, the efforts of its rulers in building a political and civilized state, their role in serving Arabian Islamic humanitarian causes, and achieving the 2030 vision in tourism and national heritage.

- **Anesthetic Pharmacology (PHARM 209)**

This course provides students with a thorough understanding of the basic science of Pharmacology that is essential to anesthesia practice. In this course students will be introduced to inhalational and induction general anesthetic agents and they will learn how to promote safety and quality during their usage. They will acquire an understanding of the mechanisms of drug actions and their uses as well as the mechanism and factors underlying adverse drug reactions, interactions and toxicities. In addition, students will gain an understanding of the mechanisms and side effects of drugs acting on various organs and systems, such as, the cardiovascular system, the nervous system, the gastrointestinal system, the endocrine system, and the reproductive system. Students will also be introduced to the mechanisms of action and side effects of antimicrobial drugs

## Courses Description

- **Airway Management (ANEST 208)**

This course reviews the anatomy of the upper respiratory tract: describes the necessary equipment for successful airway management, presents various airway management techniques: and discusses complications of laryngoscopy, intubation, and extubation. Patient safety depends on a thorough understanding of each of these topics.

- **Physics for Anesthesia (PHYS 210)**

The course includes the basic principles of physics and its clinical applications to allow the anesthesia technologist to practice a safe and reliable anesthesia. These foundations explain such actions as pressure, flow, heat, waves, radiation, and other processes that are intimately intertwined with the delivery of anesthetics. Measurement is also an integral part of this course as it describes the basic principles of the monitoring equipment that play an important part of clinical anesthetic practice. Some hazards cause in the operating room environment will be discussed. This will be provided through Traditional classes & Lab as well as group work.

- **Anesthesia Equipment and Workstations (ANEST 211)**

This course introduces the student to the basic components of the anesthesia machine. These will include the medical gas supply, fresh gas flow preparation in the anesthesia machine, delivery of gases to the patient, and disposal of waste gases. Details of flowmeters, vaporizers, anesthesia breathing circuits, ventilators and scavenging systems will be discussed throughout the course. The Anesthesia Machine Check will be performed by each student together with the principles of risk management. The principles of fluid and drug delivery systems, cardiac support devices, patient warming systems will be explained to students. The course consists of 15 weeks of lectures and practical training.

### Third Year (Level 5)

- **Clinical Anesthesia 1 (ANEST 304)**

This course provides an entry level clinical experience for second year Anesthesia Technology students. Emphasis in this course is on preoperative assessment of patients. Teaching will take place in the following sites:

Week 1 to Week 6: In the Clinical Skills and Simulation Lab where students will be given the opportunity to practice physical examination and health assessment techniques in a safe and risk-free environment.

Week 7 to Week 12: At the clinical site in the Surgical Ward and in the Pre-Anesthesia Assessment Clinic, where students will be divided into small groups and each group will be supervised by a Clinical Instructor from the Anesthesia Technology Department.

## Courses Description

- **Perioperative Anesthesia Management (ANEST 301)**

The course will provide the students with the knowledge and skills required for the anesthetic management of genitourinary, gastrointestinal, endocrine, otolaryngeal, ophthalmic and orthopedic surgeries. Laparoscopic, robotic and laser surgeries have special precautions and requirements that will be explained. Resuscitation and anesthesia for burn and trauma patients will be discussed. The course will include also, the selection of patients for outpatient and same day surgery and the requirements for anesthetic management will be explained. Finally, the basics for the anesthetic management for organ transplantation will be summarized.

- **Biostatistics (STAT 331)**

This course introduces basic statistical concepts that include both descriptive and inferential statistics. The course is intended to qualify students to professionally conduct and evaluate health related and biomedical research starting from learning sampling techniques, to collecting, managing, presenting data, analyzing, and interpreting results. Specific topics include tools for describing central tendency and variability, probability and probability distributions, hypothesis testing, methods for performing inference on population means and proportions, correlation and regression.

- **Clinical Monitoring in Anesthesia (ANEST 302)**

This course provides a detailed overview of the different monitors used in patient care in the perioperative period and focuses on creating a sense of responsibility regarding the absolute need for the presence of the anesthesia team member near the patient throughout procedures in all types of anesthesia. The course provides the student with the essential knowledge about how patient and equipment monitoring is used to titrate administration of anesthetic medication, to detect physiologic perturbations and to allow intervention before the patient suffers harm, as well as to detect and correct equipment malfunction. The course also illustrates the role of the anesthesia technologist in monitoring the patient and maintaining equipment function.

- **Anesthetic Management for Surgeries and Procedures I (ANEST 303)**

The course will provide the students with the knowledge and skills required for the anesthetic management of genitourinary, gastrointestinal, endocrine, otolaryngeal, ophthalmic and orthopedic surgeries. Laparoscopic, robotic and laser surgeries have special precautions and requirements that will be explained. Resuscitation and anesthesia for burn and trauma patients will be discussed. The course will include also, the selection of patients for outpatient and same day surgery and the requirements for anesthetic management will be explained. Finally, the basics for the anesthetic management for organ transplantation will be summarized.

## Courses Description

- **Medical Ethics (ETHIC 332)**

The course covers basic concepts in ethics, theories of morality, code of conduct and provides the tools for analyzing and solving ethical issues faced in the workplace. The codes of ethics for health care professionals by Saudi Commission for Health Specialties are covered. Additionally, the course underlines the principles of research ethics, standards of care and ethical guidelines by which a health care professional should abide, as well as defining malpractice, its causes, and ways to avoid it. Ethical issues related to patient autonomy, privacy confidentiality, communicating medical errors and bad news, organ donation, brain death, advance directives, DNR, and informed consent are also discussed. Implications of ethical and moral issues related to the practice of Anesthesia Technology are emphasized in this course

### Third Year (Level 6)

- **Anesthesia for Patients with Coexisting Diseases (ANEST 308)**

This course gives the students the required general knowledge about different human disease which they will face in practice. The course also provides a broad overview about the modifications in anesthetic planning and management according to each disease. This includes the preoperative evaluation and preparation, induction and maintenance and lastly the monitoring and recovery period care recommended for each patient according to his/her medical disease.

- **Anesthetic Management for Surgeries and Procedures 2 (ANEST 307)**

The course will provide the students with the knowledge and skills required for the anesthetic management of obstetric, neonatal, pediatric and geriatric patient groups. In each group explanation of the physiologic and pharmacologic implications will be detailed first before discussing the effects of these implications on the anesthetic management. The course will include also the anesthetic management of selected cases of importance within each group.

- **Clinical Anesthesia 2 (ANEST 309)**

This course provides clinical experience for third year Anesthesia Technology students. Emphasis in this course is on Perioperative Anesthesia Management of patients and basic and advanced airway management as well as the different equipment and techniques for monitoring during anesthesia. The course also exposes students to the anesthetic management of patients undergoing general surgical procedures. Teaching will take place at the clinical site in the operating theater and in the PACU. Students will be divided into small groups and each group will be supervised by a Clinical Instructor from the Anesthesia Technology Department.

## Courses Description

- **Regional Anesthesia and Pain Management (ANEST )**

This course provides students with the essential knowledge about the pain pathway, physiology of pain perception, types and classifications of pain as a corner stone in anesthetic practice. The course also provides comprehensive knowledge of the anatomy involved in neuraxial anesthesia and various types of regional anesthesia and nerve blocks. The course also ensures that students acquire the practical skills required to locate the target nerves using ultrasound guidance in order to perform nerve blocks safely. In addition this course provides students with an understanding of the pharmacology and toxic dosages of the agents employed in regional and local anesthesia, and directs students to employ sterile techniques, and anticipate and quickly treat physiological derangements.

- **Research Methodology (RMETH 334)**

The course includes all aspects of performing research starting with the research question to final dissemination of research results. Ethical aspects of research will be discussed. Writing a research proposal and registration of studies will be detailed. Further, students will work in groups to prepare a proposal for the research project that will be carried out in the following semesters.

- **Artificial Intelligence in Anesthesia Technology (ARTI 310)**

This course is designed to provide knowledge of various topics in artificial intelligence relevant to the Anesthesia profession. It will teach students the current clinical applications utilized in anesthesia risk predictions, monitoring, control and pain management. The course will be divided into 3 main sections that address clinical decision support, pharmacologic and mechanical robotic applications which will emphasize the importance of their utilization in order to increase efficiency and effectivity. Students will learn that implementing current AI applications will be reflected on patient care as it will impact patient outcomes positively, while reducing overall costs. It will also discuss concepts of AI utilization in accordance with ethical implications related to patient safety ensuring that it will not be compromised.

### Fourth Year (Level 7)

- **Recovery and Anesthesia Related Complications (ANEST 402)**

This course provides a detailed overview about the safe recovery of patients from surgery and anesthesia. In this course AT students are provided with the knowledge and skills necessary to assess and monitor patients in the Post Anesthesia Care Unit (PACU) for residual anesthetic effects and surgical complications and to reinstitute care for preexisting medical problems. This course also explains types of anesthetic complications and the approaches to improve post-anesthetic safety and quality of care, reduce postoperative adverse events, provide a uniform assessment of recovery and observe proper discharge criteria. The course also introduces organizational concepts that often surround complications in anesthesia, and explains how to deal with complications systematically. In addition, it exposes the underlying human factors and lapses in communication involved in the development of these complications.

## Courses Description

- **Clinical Anesthesia 3 (ANEST 312)**

This course provides clinical training for third year Anesthesia Technology students. Emphasis in this course is on the anesthetic management of patients undergoing, obstetric and gynecological procedures, as well as the specific anesthetic management of patients of the neonatal, pediatric and geriatric age groups. The course also emphasizes the anesthetic management of patients with different systemic diseases such as hypertension, diabetes, ischemic heart disease, etc, who are scheduled for elective surgery. In addition, the course also introduces students to regional and local anesthesia. Teaching will take place at the clinical site in the operation theater and in the PACU. Students will be divided into small groups and each group will be supervised by a Clinical Instructor from the Anesthesia Technology Department.

- **Anesthetic Management for Surgeries and Procedures 3 (ANEST 401)**

The course covers the basic aspects of cardiovascular anesthesia including cardiopulmonary bypass principles, thoracic anesthetic procedures including one lung ventilation will also be detailed in the course. Neuro-anesthesia will be described during this course with reference to neurophysiologic monitoring and intraoperative management of intracranial tension. The course consists of 15 weeks of lectures and practical training.

- **Research Project (ANEST 404)**

This course provides students with the opportunity to apply research skills and carry out a one semester-research project related to anesthesia under the supervision of a faculty member (research supervisor). Students will undertake the research process required to conduct a literature review, perform data collection, statistical analysis, writing up of the research paper, and preparing a research poster. Students will present their research in the Poster Presentation Day.

- **Behavioral Sciences (PSYCO 234)**

This course provides the students with an understanding of the psychological/behavioral and social components of health and illness. The focus is laid on understanding the complexity of relationships between healthcare provider, patients, their families, the community with the health issues.

### Fourth Year (Level 8)

- **Anesthesia Seminars (ANEST 407)**

This course gives the students the required general knowledge about different human disease which they will face in practice. The course also provides a broad overview about the modifications in anesthetic planning and management according to each disease. This includes the preoperative evaluation and preparation, induction and maintenance and lastly the monitoring and recovery period care recommended for each patient according to his/her medical disease.



## Courses Description

- **Management in Health Care Organization (MGMT 411)**

The course introduces students to the basic management functions and management key competencies. Emphasis is placed on management theories, the nature of the healthcare organizations and its complexity in addition to other contemporary topics in the field of healthcare management.

- **Entrepreneurship (BUS 381)**

This course covers the entrepreneurial mindset, and its importance on both personal and economical levels, it also explains how to convert ideas into projects according to the foundations and plans for establishing a good business and achieving 2030 vision for creating job opportunities by supporting entrepreneurship. Moreover, this course aims to identify entrepreneurship basis and concepts and its applications and finding entrepreneurial solutions for exciting social problems. In addition to acquiring the primary skills to run any project successfully.

- **Clinical Anesthesia 4 (ANEST 409)**

This course provides clinical training for fourth year Anesthesia Technology students. Emphasis in this course is on the anesthetic management of patients undergoing, complicated surgeries. The course also emphasizes the anesthetic management of patients with different diseases. Teaching will take place at the clinical site in the operation theatre and in the PACU. Students will be divided into small groups and each group will be supervised by a Clinical Instructor from the Anesthesia Technology Department.

- **Critical Care and Emergency Medicine (ANEST 408)**

This course provides an overview of the pathophysiology underlying critical illness and provides students with an understanding of the general management and special scenarios encountered in the care of critically ill surgical patients. This includes trauma patients, patients in sepsis, patients scheduled for or following emergent surgery, and post cardiac arrest patients. Students are also introduced to the management of electrolyte disturbances, acid base disorders, prophylactic anticoagulation, blood glucose control and nutrition in critically ill patients. Additionally, the course provides an introduction to modes of mechanical ventilation as well as communication and teamwork in the critical care environment. Proper handover techniques for equipment and for patients in the ICU is also emphasized in the course.

### **Internship Program**

The final year of the Anesthesia Technology Program is the internship program which aims to prepare interns to perform their duties and responsibilities professionally, relying on their evidence-based knowledge. In this year, they are able to reinforce and integrate clinical skills with theoretical knowledge through continuous development of self confidence as they implement understanding of advanced concepts, before becoming licensed specialists. This year not only helps them develop skills but also emphasizes the importance of professionalism by allowing them to evolve their healthcare manners and ethical perspectives. The internship takes place at 3 or more different rotations at governmental hospitals. Interns are expected to report to their clinical coordinator and follow all required rules and regulations as stated within the internship manual.

## Teaching and Learning Strategies

The primary goal of the Anesthesia Technology curriculum at CAMSJ is to equip students with the knowledge and skills required to function effectively as essential members of the anesthesia patient care team. The curriculum places emphasis on both fundamental and advanced clinical procedures, enabling students to assist licensed anesthesia providers in the acquisition, preparation, and application of the equipment necessary for delivering anesthesia care. By providing students with a comprehensive understanding of anesthesia technology, the program prepares them to make valuable contributions to the healthcare industry and positively impact the lives of patients. Teaching strategies used in the program are:

- Lectures
- Interactive Lectures
- Case studies
- Group discussions
- Written assignment
- Field training
- Simulation laboratories
- Skill laboratories
- Flip classrooms
- Team based learning
- Poster presentations
- Reflective writing
- Journal clubs

## Assessment Methods

To ensure objectivity and fairness in the evaluation process, the AT program has established clear assessment criteria and grading rubrics that are shared with students in advance. Additionally, the program offers regular feedback and support to students, providing them with the opportunity to improve their performance and achieve their full potential.

Assessment methods used in the program include:

- written exams (multiple choice question, R-type, and short essay)
- practical evaluations of technical skills (OSCE, OSPE),
- clinical assessments of students' performance in real-world settings (using checklist, rubric),
- peer evaluation and checklist rubric for poster and TBL.

## Academic Advisory

All students have an assigned faculty advisor upon entry to the program. The advisor is available in person at office hours, via email, or by telephone. AT faculty advisors individually assist AT students with information about academic and program requirements, academic planning and scheduling, course registration, and any issues that may arise during the academic year.

### Academic Advisors Contact Information

| Name                          | Email  |
|-------------------------------|--|
| Dr. Doaa Ahmed Ebrahim Radwan | <a href="mailto:daradwan@iau.edu.sa">daradwan@iau.edu.sa</a>           |
| Dr. Swathi Gurajala Gurajala  | <a href="mailto:sggurajala@iau.edu.sa">sggurajala@iau.edu.sa</a>       |
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| Ms. Nourah Mutlaq AlOtaibi    | <a href="mailto:nmsalotaibi@iau.edu.sa">nmsalotaibi@iau.edu.sa</a>     |
| Mrs. Nora Yousef Alhannoush   | <a href="mailto:nyalhannoush@iau.edu.sa">nyalhannoush@iau.edu.sa</a>   |
| Mrs. Amal Matoq Sobahi        | <a href="mailto:amsobahi@iau.edu.sa">amsobahi@iau.edu.sa</a>           |
| Mrs. Ahood Sayah AlMutairi    | <a href="mailto:asmalmutairi@iau.edu.sa">asmalmutairi@iau.edu.sa</a>   |
| Mrs. Ghaida Ali AlAmri        | <a href="mailto:gaalamri@iau.edu.sa">gaalamri@iau.edu.sa</a>           |

For more information regarding student services, rights and duties please click on the link below:

[https://www.iau.edu.sa/sites/default/files/resources/1\\_6.pdf](https://www.iau.edu.sa/sites/default/files/resources/1_6.pdf)

## Extracurricular Activities

The Student Activities Unit at CAMSJ, which operates under the Vice Deanship of Academic Affairs, is responsible for planning and executing extracurricular activities and student committees. These initiatives are aimed at fostering a sense of loyalty to the college and university, while also enhancing students' cultural, psychological, and mental abilities. The unit offers a range of services and activities, all of which are designed to create a motivated educational environment.

Activities may include the following:

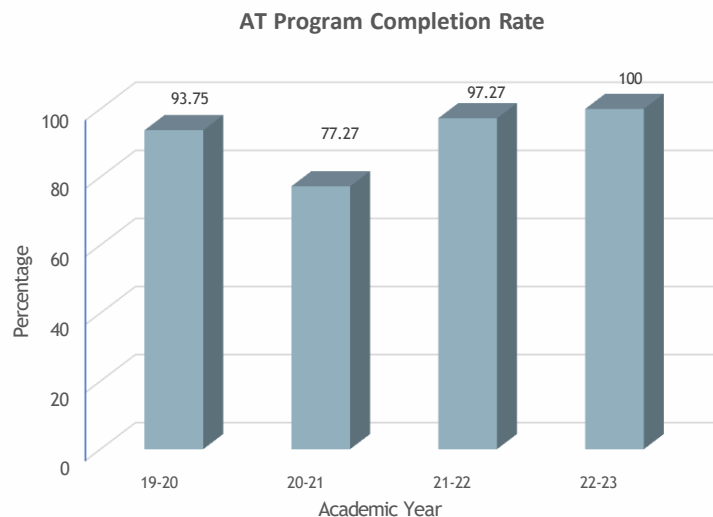
- student counseling,
- cultural events,
- sports activities,
- and leisure trips,

For more information on student rights and duties, please visit IAU's website or contact the Student Activities Unit at [CAMSJ.SA@iau.edu.sa](mailto:CAMSJ.SA@iau.edu.sa).

## Graduation Requirements

In order to graduate from the Anesthesia Technology program, students must successfully complete all graduation requirements outlined in their degree plan and maintain a cumulative GPA of a minimal grade 2 out of 5. For additional information on the rules and regulations regarding courses and examinations at Imam Abdulrahman Bin Faisal University, please refer to the IAU website.

The AT Program has consistently maintained an outstanding program completion rate, as illustrated in the chart below.



## Employment Opportunities

After completing a one-year internship, graduates may apply for employment opportunities at local hospitals or other medical facilities.

The graduates primary responsibility as anesthesia technologist's is to oversee the administration of anesthesia and ensure the safety and well-being of the patient during complete surgical and medical procedures. This includes monitoring the patient's vital signs, managing their pain, and keeping them in a controlled state of unconsciousness. In addition to the clinical duties, they may also be responsible for maintaining and servicing equipment, recording maintenance activities, and forsee troubleshooting issues. Graduates may work in various healthcare settings, including emergency rooms, intensive care units, and ambulatory surgery centers. Outside of clinical settings, they may also pursue opportunities in academia, such as teaching or research positions, or apply for postgraduate studies.

## Alumni

CAMS-J and the AT Program are dedicated to establishing and maintaining strong connections with their alumni. The program aims to create a vibrant community that promotes lifelong engagement and provides valuable networking opportunities to support alumni's professional growth.

Recognizing the significance of alumni, the program actively involves them in curriculum development. Their continuous feedback helps shape the program's learning outcomes, ensuring alignment with evolving employment needs. Alumni also contribute to social activities by volunteering their expertise to raise public awareness on crucial issues in their field through community services. Additionally, they serve as mentors to current students, assisting them in exploring job opportunities.

To foster effective communication and maximize program productivity, the AT Program engages alumni through various social media platforms. This approach allows for beneficial interactions and enables positive outcomes for the institute, students, employers, and society as a whole.

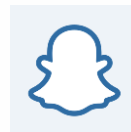
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IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY  
كلية العلوم الطبية التطبيقية بالجبيل  
College of Applied Medical Sciences in Jubail