



Cairo University
Faculty of Medicine

Program Specification for MD Degree in Anesthesia, Surgical ICU and Pain Management

Program type: single.

Department offering the program: Department of Anesthesia, intensive care and pain management.

Program Code: ANES 900

Total Credit points: 295 (175 for the previous master degree + 120)

Academic year: 2016/2017

Program Director:

Prof. Ahmed Shash, M.D., Professor and head of the department of Anesthesia, Surgical ICU and Pain Management, Kasr Alainy Faculty of Medicine, Cairo University.

Program coordinator:

Prof. Manar Elkholy, M.D., JMHP. Professor of Anesthesia, Surgical ICU and Pain management, Kasr Alainy Faculty of Medicine, Cairo University.

External evaluator:

Professor Gamal Fouad Saleh Zaki, MD. Professor of Anesthesia and ICU, Faculty of Medicine, Ain Shams University.

I. Aim of the Program

To provide the knowledge, skills and attitudes necessary to master the delivery of safe and effective peri-operative anesthetic care for patients undergoing complex surgical procedures and demonstrate necessary multi-disciplinary leadership, communication and team-working skills necessary to ensure the benefit of the patient and the organization.

II. Intended Learning Outcomes of the Program (ILOs)

A- Knowledge and Understanding: By the end of the program the candidates should be able to:

1. Describe in depth the advanced and applied anatomy of different tissues, organs, nerves and systems relevant to the practice of anesthesia, ICU and pain practice.
2. Recognize the physiological functions and mechanism of action of different systems of the body.
3. Describe the neuromuscular physiology.



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4. Identify different groups of drugs related to the perioperative practice of anesthesia, ICU and pain.
5. Determine the basic general pharmacodynamics and pharmacokinetics drugs related to anesthesia.
6. Explain the effect of drugs on human physiology.
7. Recognize the drug interaction in all its forms; addition, synergy, etc.
8. Recognize the proper management of the medical emergencies that are commonly encountered in perioperative practice.
9. Describe the physical and clinical measurements related to anesthesia and their applications in advanced anesthetic techniques.
10. Recognize the safe and effective operation of modern anesthesia machines.
11. Describe the management of complex surgical procedures with or without co-existing diseases during peri-operative care in pediatrics.
12. Describe the management of complex surgical procedures with or without co-existing diseases during cardio-thoracic peri-operative care.
13. Describe the management of complex surgical procedures with or without co-existing diseases during neurosurgical peri-operative care.
14. Describe common considerations of pediatrics' peri-operative care.
15. Describe the role of anesthesiologist in basic and advanced multiple trauma care in emergency room, ICU and operating theatre.
16. Describe basic statistical basics required
17. Describe in details the different pain scores.
18. Analyze different techniques of acute and chronic pain relief.
19. Describe the basic daily needs of carbohydrates, proteins and lipid.
20. Describe the management of critically ill patients in surgical ICU and Pediatric ICU.

B. Intellectual Skills:By the end of the program the candidates should be able to:

1. Interpret the normal and abnormal anatomical structures on radiographs, C.T. scans and magnetic resonance images of importance to the perioperative practice and trauma.
2. Interpret advanced monitoring tests; trans-esophageal-echo (TEE), bi-spectral index (BIS), evoked potential, etc.



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3. Use the appropriate medication, alone or mixed with others, according to the individual case and the nature of the surgical procedure.
4. Categorize patients according to different scoring systems.
5. Select the proper perioperative investigations according to the medical status and the surgical procedure.
6. Interpret the pre-operative investigations with the patient's clinical condition.
7. Select the proper technique of anesthesia, identifying its related complications and the accompanying physiological response.
8. Predict complications according to the surgical procedure and the comorbidities.
9. Select the different measuring systems and monitoring devices important for safe anesthesia delivery.
10. Design plans for acute and chronic pain management taking into account the cultural and individual needs.
11. Comply to infection control measures followed in the institution.
12. Commit to standards of quality control adopted by the institution.
13. Assess post operative pain in different age groups.
14. Assess blood deficit and fluid and electrolyte imbalance.
15. Assess nutritional requirements blood transfusion, nutritional support and all the different modes of ventilation in the peri-operative period and ICU.
16. Plan management of chronic pain situations including cancer pain.

C. Professional and Practical Skills:

By the end of the program the candidates should be able to:

1. Plan an individualized perioperative plan for each patient according to her/his medical condition and the surgical procedure.
2. Demonstrate safe practice in complex situations that are not mastered.
3. Demonstrate safe use of the anesthesia machine including the connections, the proper monitors as well as drugs and related anesthetic supplies.
4. Demonstrate safe induction, maintenance and recovery of anesthesia.
5. Modify the per-operative plan according to the upcoming clinical findings and complications.



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6. Solve medical problems as soon as they are diagnosed.
7. Write the medical reports including the incidents and complications in a professional and objective way.
8. Assess and manage post operative pain in different age groups by neural blockade, patient controlled analgesic, etc.
9. Apply plans for management of fluid and electrolyte imbalance and blood loss. fluid balance, blood transfusion, nutritional support and all the different modes of ventilation in the peri-operative period and ICU.
10. Design a professional research project, clinical or laboratory, using the appropriate statistical methods.
11. Acquire extra specific skills in two of the basic fields related to anesthesia, ICU and pain managements (chosen by the candidate)

D. General and Transferable Skills: By the end of the program the candidates should be able to:

1. Demonstrate and teaches safe behavior in prescribing practice to all members of the multi-disciplinary team.
2. Demonstrate how to obtain a consent from patients/guardians.
3. Demonstrate compassion and empathy towards patients' condition including old, disabled, mentally challenged and children and their guardians.
4. Provides appropriate advice to others regarding the proper management of clinical problems.
5. Show the necessary maturity to guide the choice of audit cycles/quality improvement in developing practice.
12. Acknowledge mistakes and mishaps and demonstrate the ability to lead managing errors. Demonstrate the interest in new trends and developments by questioning status quo, committing to changing roles and responsibilities, respecting attempts of the others and urge responsible individuals and groups to implement beneficial changes.
13. Support research (clinical and laboratory) as it is important for development of clinical practice.
14. Commit to the objectives of the team, hospital and national planning of health care.
15. Identify and solve problems effectively.



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16. Demonstrate efficient use of resources effectively.
17. Seek continuous improvement of knowledge and skills using a variety of strategies including development of personal learning network (individuals or organizations).
18. Receive feedback appropriately for the purpose of self-improvement and provides feedback to others when asked.

III. Academic Standards

External references for standards:

Syllabus for FCARCSI (United Kingdom)

IV. Program Admission Requirements

According to the Faculty of Medicine, Cairo University Bylaws for Post Graduate Programs, July 2009, that was modified in 2012, applicants should have a Master degree or equivalent accredited degree, accredited in the same specialty. Application to join the program is open during January and July. The training prior to registration may be accredited according to departmental and hospital evaluation.

V. Program Structure and Contents

Program duration: Two academic years

Program structure: Total credit points 295 (**Tables 1a & 1b**)

Previous master degree: 175 points

Compulsory courses; two academic years. (30 weeks each)

1- Advanced applied anatomy	0.5 Credit Point
2- Advanced applied physiology	1 Credit Point
3- Advanced applied pharmacology	1 Credit Point
4- Advanced applied physics & clinical Measurements	1 Credit Point
5- Statistics for anesthesia	0.5 Credit Point
6- Advanced specialized anesthesia	20 Credit Point

Elective courses; choose two courses

1- Surgical Intensive Care Unit I.C.U	0.5 Credit Point
2- Advanced pain management	0.5 Credit Point
3- Advanced applications in pediatric cardiac surgery	0.5 Credit Point
4- Basics of Trans-esophageal Echo-cardiograph	0.5 Credit Point
5- Electro Encephalogram and evoked potentials	0.5 Credit Point
6- Radio diagnosis related to anesthesia and I.C.U	0.5 Credit Point
7- Clinical Nutrition	0.5 Credit Point
8- Sonar-guided Regional Anesthesia	0.5 Credit Point
9- Disaster medicine	0.5 Credit Point

<u>Scientific activities</u>	5 Credit Point
<u>Advanced Residency training program</u>	50 Credit Point
<u>MD Thesis</u>	40 Credit Point
<u>Total credit points</u>	295 Credit Point

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Table 1a: Compulsory and elective courses for the candidates of the MD degree and the credit points

Courses Title and Code	Credit Point		ILOs
	CPS	Total	
Compulsory Courses			
Advanced Applied Anatomy ANES 923 AAN	0.5		A:1 B:1 C: D: 1-18
Advanced Applied Physiology ANES 923 AAP	1		A: 2,3 B: 2 C: D: 1-18
Advanced applied pharmacology ANES 923APH	1		A: 4,5,6,7 B: 3 C: 4 D: 1-18
Advanced applied Physics and Clinical Measurements ANES 923APM	1		A: 8,9,10 B: 2,9 C: 3 D: 1-18
Statistics for Anesthetist ANES 923 SA	0.5		A: 16 B: C: 10 D: 1-18
Advanced Specialized Anesthesia ANES 923 ASA	20		A: 11,12,13, 14, 15 B: 4,5,6,7,8,11,12,14 C: 1,2,3,4,5,6,7,8,9 D: 1-18
Total credit points	24		
ELECTIVE COURSES: Candidate choose two Courses			
I.C.U. ANES 923 I.C.U	0.5		A: 11,12,13,14,15,20. B: 8,11,12,14
Advanced Pain Management ANES 923 APM	0.5		A: 18. B: 4,10,13,16. C: 8.
Advanced Application in Pediatric Cardiac Surgery ANES 923 APC	0.5		C: 11
Basic of Trans-oesophageal Echo-cardiograph ANES 923 BTE	0.5		A:2
Electro Encephalogram and Evokes Potential ANES 923 EEP	0.5		C: 11
Radio-diagnosis Related to Anesthesia and ICU ANES 923 RRA	0.5		C: 11
Clinical Nutrition ANES 923 CN	0.5		A: 19, B: 4, 15
Guided Regional Anesthesia ANES 923 UGA	0.5		C: 11
Disaster Medicine ANES 923 DM	0.5		C: 11
Scientific Activities	5		D: 1-18
Residents Training ANES 923 C	50		C: 1,2,3,4,6,7,8,9,11 D: 1-18
M.D. Thesis	40		A: 16. C: 10. D: 5,13,14
Total Credit Points	120		



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Medical Doctorate Thesis:

All medical degree students should write a thesis in Anesthesia, ICU and/or pain management. The department and the ethical committees must approve the protocol of the research. The thesis includes a review part and a practical part. The thesis is supervised by one or more senior staff members of the anesthetic department and may include other specialties according to the nature of the research.

The thesis should be defended to be approved by a special committee which includes one of the senior supervisors, an external examiner and an internal examiner.

Scientific Activities:

The students should actively participate in the scientific activities of the department such as :

- Journal club once every two weeks.
- Seminars (including recent topics and controversial issues) once weekly , Students are expected to participate in the discussions .
- Scientific meeting arranged by the department.
- Attendance of thesis discussions.
- Morbidity and mortality monthly meeting.
- Workshops, such as difficult airway management, Fiberoptic intubation course, basic and advanced life support course.
- Conferences.
- Audit activities.

Each activity is monitored and given credit points registered in a special section in the residency training logbook. The candidates should collect the required points before they are allowed to sit the final exam.



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VI. Regulations for Progression and Program Completion

After collecting the required credit points for the respective courses, the advanced residency training, the scientific activities, and the Thesis the candidate will be eligible to sit the final examination. In case he/ she fails to pass the examination, resubmission for the next examination is required. The candidate will only receive the MD degree after passing this final examination. MD degree should be obtained within a maximum of 6 years after the registration date.

VII. Assessment

A: Assessment Tools

- **Supervision and Monitoring of Training Program**

According to the Faculty of Medicine, Cairo University Bylaws for Residency Training Programs, July 2009, modified in 2012, and the new academic and clinical training program approved by the Department of anesthesia, surgical ICU and pain management in February, 2017, professors and Assistant professors carry continuous assessment during the program. A residency-training program logbook will be kept for each student to document all his/her clinical, laboratory and/or operative/procedural activities as well as his/her participation in different scientific activities. The Chairman of the department should allow the students to undergo the final examination when they complete their training program and collect the credit points needed.

- **Formal Assessment**

According the Faculty of Medicine, Cairo University Bylaws for Post Graduate July 2009, modified in 2012, and the new academic and clinical training program approved by the Department of anesthesia, surgical ICU and pain management in February, 2017, students should be assessed at the of the program

Compulsory course: four written exams (3 hours each) including short essay questions (3 papers) + case report paper + oral exams + clinical exam.

Elective course: the candidate should attend 100% of the work shop to enter the exam.

The candidate should pass the written examination before sitting for the oral and clinical examinations. If he/she fails to pass three consecutive oral and/or clinical exams, the result of the previous written examination will be invalid and the candidate should re-sit for a new written examination.

B: Assessment Schedule (Table 2):

The written exam will be held in May/ November (four days)

Day one: Advanced anesthesia (3 hours written exam)

Day two: Advanced anesthesia (3 hours written exam)

Day three: Basic science exam (3 hours written exam)

Day four: case report exam (3 hours exam)

The clinical exam will be held in one day.

The oral exam will be held in two days.

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Table 2: Marks allocated to the MD degree of different courses):

Courses Code Title	Marks			
	Written	Oral	C/P*	Total
-Advanced applied anatomy -Advanced applied physiology -Advanced applied pharmacology -Advanced Applied Physics & Clinical Measurement -Statistics for Anesthetist	100	100	-	200
Advanced Specialized Anesthesia: Two written exams, each 3 hours+ written case report exam (3 hours)	200+200+200	200	200	1000
Two Elective courses				
Total				1200

* *C: clinical exam; P: practical exam.*
(50 marks for each credit point)

- It is mandatory to pass all the papers of written exams separately.
- The passing mark in any written exam is $\geq 60\%$.

VIII. Evaluation of Program Intended Learning Outcomes (Table 3) :

Evaluator	Tool	Sample
Senior Students	Questionnaire at the end of the program	All the post-graduate students
Alumni	The faculty is currently developing an Alumni office for postgraduates	Not yet determined
Stakeholders	A meeting will be arranged during annual conference of the department	Available representatives from: <ul style="list-style-type: none"> - Army hospitals - National medical insurance - Medical syndicate - Ministry of health
External Evaluators	Review program and courses Attending the final exam	Once before implementation Of-Bi-annual report
Department Quality Assurance committee	Annual program reviewer	

Chairman of Department of Anesthesia, Surgical ICU, Pain management

Professor Ahmed Mounir Shash

Date: 11/2/2017

