Master (MSC) Degree Program and Courses Specifications for Anaesthesia and postoperative intensive care

(According to currently applied Credit points bylaws)

Anesthesia and postoperative intensive care
Faculty of medicine
Assiut University
2022-2023

Contents	
Item	***Page***
Program Specification For Anesthesia and postoperative intensive care , **2022-2023** **A. Basic Information**	**4**
B. Professional Information **1. Program aims** **2. Intended learning outcomes (ILOs) for the whole program** **3. Program academic standards** **4. Program external references** **5. Program structure and contents** **6. Courses contents (Annex 1)** **7. Admission requirements** **8. Progression and completion requirements** **9. Assessment methods and rules** **10. Program evaluation** **11. Declaration**	**5**
- Annex 1, Courses/ specifications	**23**
Basic science courses **1- Course 1 Pharmacology**	**24**
2- Course 2 Physiology	**30**
3- Course 3 Anatomy	**36**
4- Course 4 Physics and clinical measurements	**41**
3- Course 5 Internal Medicine	**47**
Speciality Course **1) Course 6 Anesthesia and intensive care** **1) Unit (Module) 1 Anesthesia** **2) Unit (Module) 2 Intensive care** **3) Unit (Module) 3 Pain management**	**60**

Master degree of Anesthesia and postoperative intensive care

A. Basic Information

- **Program Title:** Master degree of Anesthesia and postoperative intensive care
- **Nature of the program: Single.**
- **Responsible Department:** Department of Anesthesia and postoperative intensive care Faculty of Medicine- Assiut University.
- **Program Academic Director (Head of the Department): Prof. Hany El-Morabaa**
- **Coordinator (s):**

Principle coordinator: Prof. Hamdy Abbas Youssef
Assistant coordinator (s): Prof. Fatma Ahmed Abd El Aal

- **Internal evaluators: Prof: Hany El-Morabaa**
- **External evaluator: Prof: Abdel-Rahman Hassan Abd El-Rahman**
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- **Date of Approval by the Faculty of Medicine Council of Assiut University: ---23-9-2017------**
- **Date of most recent approval of program specification by the Faculty of Medicine Council of Assiut University: -27-11-2022**
- **Total number of courses: 6 courses**

B. Professional Information

1- Program aims

1/1 To enable candidates to acquire high level of clinical skills, bedside care skills, in addition to update medical knowledge as well as clinical experience and competence in the area of anesthesia, intensive care and management of acute and chronic pain and enabling the candidates of making appropriate referrals to a sub-specialist.

1/2. Provide candidates with fundamental knowledge of Anesthesia and postoperative intensive care as regards; dealing with patients in operative room, ICU equipments, and training skills of different anesthetic and intensive care techniques.

1/3 To introduce candidates to the basics of scientific medical research.

1/4 Enable candidates to start professional careers as specialists in Egypt but recognized abroad.

1/5 To enable candidates to understand and get the best of published scientific research and do their own.

2- Intended learning outcomes (ILOs) *for the whole program*:

2/1Knowledge and understanding:

A. Explain the essential facts and principles of relevant basic sciences including, pharmacology, physiology, anatomy and Physics and clinical measurements related to Anesthesia and postoperative intensive care.
B. Mention essential facts of clinically supportive sciences including internal medicine related to Anesthesia and postoperative intensive care.
C. Demonstrate sufficient knowledge of etiology, clinical picture, diagnosis, prevention and treatment of common diseases and situations related to Anesthesia and postoperative intensive care.
D. Give the recent and update developments in the pathogenesis, diagnosis, prevention and treatment of common diseases related to Anesthesia and postoperative intensive care.
E. Mention the basic ethical and medicolegal principles that should be applied in practice and relevant to Anesthesia and postoperative intensive care.
F. Mention the basics and standards of quality assurance to ensure good clinical practice in the field of Anesthesia and postoperative intensive care.
G. Mention the ethical and scientific principles of medical research.
H. State the impact of common health problems in the field of anesthesia and postoperative intensive care on the society and how good clinical practice improves these problems.

2/2 Intellectual outcomes

A. Correlate the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases of the Anesthesia and postoperative intensive care.

B. Demonstrate an investigatory and analytic thinking approach (problem solving) to common clinical situations related to Anesthesia and postoperative intensive care.

C. Design and /or present a case or review (through seminars/journal clubs) in one or more of common clinical problems relevant to the Anesthesia and postoperative intensive care.

D. Formulate management plans and alternative decisions in different situations in the field of the Anesthesia and postoperative intensive care.

2/3 Skills

2/3/1 Practical skills (Patient Care)

A. Obtain proper history and examine patients in caring and respectful behaviors.

B. Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment for common conditions related to Anesthesia and postoperative intensive care.

C. Carry out patient management plans for common conditions related to Anesthesia and postoperative intensive care.

D. Use information technology to support patient care decisions and patient education in common clinical situations related to Anesthesia and postoperative intensive care.

E. Perform competently non invasive and invasive procedures considered essential for the Anesthesia and postoperative intensive care.

F. Provide health care services aimed at preventing health problems related to Anesthesia and postoperative intensive care.
G. Provide patient-focused care in common conditions related to Anesthesia and postoperative intensive care, while working with health care professionals, including those from other disciplines
H. Write competently all forms of patient charts and sheets including reports evaluating these charts and sheets (Write a consultation note, Inform patients of a diagnosis and therapeutic plan, completing and maintaining medical records)

2/3/2 General skills

Including:

- Practice-based Learning and Improvement
- Interpersonal and Communication Skills
- Professionalism
- Systems-based Practice

Practice-Based Learning and Improvement

A. Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks).
B. Appraises evidence from scientific studies.
C. Conduct epidemiological Studies and surveys.
D. Perform data management including data entry and analysis and using information technology to manage information, access on-line medical information; and support their own education.
E. Facilitate learning of students and other health care professionals including their evaluation and assessment.

Interpersonal and Communication Skills

F. Maintain therapeutic and ethically sound relationship with patients.

G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.

H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.

I. Work effectively with others as a member of a health care team or other professional group.

Professionalism

J. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society

K. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices

L. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities

Systems-Based Practice

M. Work effectively in relevant health care delivery settings and systems including good administrative and time management.

N. Practice cost-effective health care and resource allocation that does not compromise quality of care.

O. Assist patients in dealing with system complexities.

3- Program Academic Reference Standards (ARS) (Annex2)

Academic standards for master degree Anaesthesia and postoperative intensive care

Assiut Faculty of Medicine developed master degree programs' academic standards for different clinical specialties.

In preparing these standards, the General Academic Reference Standards for post graduate programs (GARS) were adopted. These standards set out the graduate attributes and academic characteristics that are expected to be achieved by the end of the program. These standards were approved by the Faculty Council on 17-6- 2009. These standards were revised and approved without changes by the Faculty Council on 23-9-2014. These standards were re-revised and approved without changes by the Faculty Council on 27-11-2022.

4- Program External References (Benchmarks)

1. ACGME (Accreditation Council for Graduate Medical Education).
http://www.acgme.org/acWebsite/navPages/nav_Public.asp
2.University of Michigan Health System, Anesthesiology Critical Care Fellowship
http://www.med.umich.edu/anescriticalcare/templates/education_fellow_goals.htmlthwestern.edu/anesthesiology/Education/residency/training/simcenter-curriculum.html

Comparison between program and external reference		
Item	**Chest Diseases and Tuberculosis program**	**University of Michigan Health System, Anesthesiology Critical Care Fellowship**
Goals	Matched	Matched
ILOS	Matched	Matched
Duration	3-5 years	3 years
Requirement	Different	different
Program structure	Different	different

5. Program Structure and Contents

A. Duration of program: 3 – 5 years

B. Structure of the program:

Total contact number of credit points 180 point (20 out of them for thesis)

Didactic# 40 (22.2 %), practical 120 (66.7%), thesis 20 (11.1%), total 180

First part

Didactic 14 (35 %), practical 24 (60 %), elective course 2 CP (5%), total 40

Second part

Didactic 24 (20%), practical 96 (80 %), total 120

 # Didactic (lectures, seminars, tutorial)

According the currently applied credit points bylaws:

Total courses 160 credit point

Compulsory courses: 98.9%

Elective course: 2 credit point =1.25%

	Credit points	% from total
Basic science courses	24	13.3%
Humanity and social courses	2	1.1%
Speciality courses	134	74.5%
Others (Computer, …)		
Field training	120	66.7%
Thesis	20	11.1%

C. Program Time Table

A. Duration of program 3 years maximally 5 years divided into

- **Part 1: (One year)**

  Program-related basic science courses and ILOs

  Students are allowed to sit the exams of these courses after 12 months from applying to the MSc degree.

One elective course can be set during either the 1st or 2nd parts.

- **Thesis**

  For the M Sc thesis;

  MSc thesis subject should be officially registered within 6 months from application to the MSc degree,

  Discussion and acceptance of the thesis could be set after 12 months from registering the MSc subject;

  It should be discussed and accepted before passing the second part of examination)

- **Part 2 (2 years)**

Program –related speciality courses and ILOs

Students are not allowed to sit the exams of these courses before 3 years from applying to the MSc degree.

The students pass if they get 50% from the written exams and 60% from oral and clinical/practical exams of each course and 60% of summation of the written exams, oral and clinical/practical exams of each course

Total degrees 1900 marks.

700 marks for first part

1200 for second part

Written exam 40% - 70%.

Clinical/practical and oral exams 30% - 60%.

D. Curriculum Structure: (Courses):

Curriculum Structure: (Courses / units/ rotations):

Year 1

The first year of the fellowship is primarily for basic science related medical knowledge and internal medicine (studied in specialized courses over 12 months in collaboration with basic sciences department and Internal Medicine department of Assiut Faculty of Medicine) and a clinical year during which the fellows gain experience with general anesthesia, develop

proficiency in the performance and appropriate utilization of various procedures, and develop proficiency in the utilization and management of patient in operative room and intensive care unites Throughout the year, emphasis is placed on developing: 1) preoperative assessment of patients 2) the ability to efficiently dealing with the patient during operation and dealing with intraoperative complications 3) the ability to deal with the postoperative period.

The first year fellow spends the year rotating among five different services: 1) general operative rooms Assiut University Hospital; 2) the ability to deal with the patients in special operative rooms at Assiut University Hospital; 3) positive operative intensive care, general intensive care, obstetric intensive care; 4) acute and chronic Paine unit, Assiut University Hospital;

Years 2 and 3

Although the primary focus of the second and third year is the development of skills and experience in research (see below), senior fellows continue to participate in clinical activities and certain procedures. First, they maintain their longitudinal anesthesia in special departments (cardiac, neuro, pediatric, orthopedic, trauma, CPR, and out patients anesthesia) experience throughout these years. Senior fellows will also actively participate in the regular weekly scientific seminars and collaborate with those fellows in their first year. In addition, fellows rotate through the different operative rooms two months on clinical rotations (on intensive care units). This rotation complements the previous experiences.

Approximately by the end of the first year, fellows are expected to identify a research area in which the subsequent two years will be focused. Together, the trainee and supervisors develop a project for investigation that is of interest to the trainee and within the expertise of the faculty member; in certain instances, joint mentorship provided by two faculty members within the Division, or by one divisional faculty member and a

collaborator from another unit, is appropriate. By the beginning of the second year, the fellow presents a conference in which he/she synthesizes existing knowledge, presents the problem for investigation, and describes the proposed plan of investigation. The faculty members and fellows in attendance provide feedback to the fellow and supervisors about the proposed project; this process of peer review provides a useful experience for the fellow and often strengthens the experimental approach.

During the second and third years, the trainee carries out the proposed work in the clinical research facilities of the faculty mentor(s). The trainee also benefits from interactions with other trainees, technicians, and collaborating investigators. The trainee also participates in laboratory meetings and journal clubs specific to individual research groups. Presenting research findings at regional and national meetings and submitting work for publication are both important aspects of the investigative endeavor. The trainee will receive guidance and specific assistance in learning to prepare data for oral and written presentation, to prepare graphics, and to organize talks and prepare slides. Throughout the research training period, it is anticipated that the fellow will assume increasing intellectual responsibility and technical independence.

Research Pathway

Selection of a research project and supervisors is subject to the approval of the Anesthesia and intensive care, council approval and vice-Dean of post graduate studies of the faculty as officially regulated. Fellows may elect clinical trial, meta-Analysis/ systematic Review, clinical audit or epidemiological studies -based research training pathways. For all Master degree students, a research advisory committee will be selected by the fellow based on the approved regulatory rules of the faculty council. This committee will monitor the progress of research fellows and provide advice regarding research training and career development

courses of the program:

Courses and student work load list	Course Code	Credit points		
		Didactic #	training	total
First Part				
Basic science courses (8CP) **1. Course 1 Pharmacology** **2. Course 2 Physiology** **3. Course 3 Anatomy** **4 .Course 4 Physics and clinical measurements**	 **AIP206** **AIP203** **AIP201** **AIP229A**	 **2** **2** **2** **2**		 **2** **2** **2** **2**
General clinical compulsory courses (6 points) **5.Course 5 (Internal Medicine)**	 **AIP218**	 **6**		 **6**
Elective courses*	**2 CP**			
Clinical training and scientific activities:				
Clinical training in General clinical compulsory courses (10 CP) **Internal Medicine**	 **AIP218**	 **10**		**10**
Clinical training and scientific activities in Speciality course (14 CP) **Anesthesia and intensive care**	**AIP229B**		**14**	**14**
Total of the first part		**16**	**24**	**40**
Second Part	**Speciality course 24 CP** **Speciality Clinical Work 96 CP**			
Speciality Courses **6) Course 6 Anesthesia and intensive care ***	**AIP229B**	**24**		**24**
Training and practical activities in speciality (96 CP) (Anesthesia and intensive care)	**AIP229B**		**96**	**96**
Total of the second part		**24**	**96**	**120**
Thesis	**20 CP**			
Total of the degree	**180 CP**			

 # Didactic (lectures, seminars, tutorial)

* Elective courses can be taken during either the 1st or 2nd parts.

Student work load calculation:

Work load hours are scheduled depending on the type of activities and targeted competences and skills in different courses

Elective Courses#:

- Medical statistics.
- Evidence based medicine.
- Medicolegal Aspects and Ethics in Medical Practice and Scientific Research
- Quality assurance of medical education
- Quality assurance of clinical practice.
- Hospital management

One of the above mentioned courses are prerequisites for fulfillment of the degree.

Thesis:

20 CP are appointed to the completion and acceptance of the thesis.

***Anesthesia and intensive care**

Units' Titles' list	% from total	Level (Year)	Core Credit points		
			Didactic	training	Total
1) Unit 1 "Anesthesia "	80%	1,2&3	19.2	88	107.2
2) Unit 2 "Intensive Care	15%	2&3	3.6	16.5	20.1
3) Unit 3 " Pain Management"	5%	3	1.2	5.5	6.7
Total No. of Units:	3	1,2,3	24	110	134

** Different Courses ILOs are arranged to be studied and assessed in the 1st and 2nd parts of the program as scheduled in the program time table.

6. Courses Contents (Annex 1)

The competency based objectives for each course/module/rotation are specified in conjunction with teaching/training methods, requirements for achieving these objectives and assessment methods.

See Annex 1 for detailed specifications for each course/ module

7-Admission requirements

- **Admission Requirements (prerequisites) if any :**
  - **I. General Requirements:**
    - MBBCh Degree form any Egyptian Faculties of Medicine
    - Equivalent Degree from medical schools abroad approved by the Ministry of Higher Education
    - One year appointment within responsible department (for non Assiut University based registrars)
  - **II. Specific Requirements:**
    - Fluent in English (study language)

VACATIONS AND STUDY LEAVE

The current departmental policy is to give working residents 2 week leave prior to first/ second part exams.

FEES:

As regulated by the postgraduate studies rules and approved by the faculty vice dean of post graduate studies and the faculty and university councils.

8-Progression and completion requirements

- Examinations of the first part could be set at 12 months from registering to the MSc degree.
- Examination of the second part cannot be set before 3 years from registering to the degree.
- Discussion of the MSc thesis could be set after 1 year from officially registering the MSc subject before setting the second part exams.
- The minimum duration of the program is 3 years.

The students are offered the degree when:

1. Passing the exams of all basic science, elective and speciality courses of this program as regulated by the post graduates approved rules by the faculty council.
2. Completing all scheduled CP and log book (minimum 80%).
3. Discussion and acceptance of the MSc thesis.

9- Program assessment methods and rules (Annex IV)

Method	ILOs measured
Written examinations: Structured essay questions Objective questions: MCQ Problem solving	K & I
Structured oral	K ,I &G skills
Logbook assessment	All
Research assignment	I &G skills

Weighting of assessments:

Courses		Degrees			
First Part	**Course Code**	**Written Exam**	**Oral Exam***	**Practical / Clinical Exam**	**Total**
First Part					
Basic science courses:					
Course 1 Pharmacology	**AIP206**	**40**	**60**		**100**
Course 2 Physiology	**AIP203**	**40**	**60**		**100**
Course 3 Anatomy	**AIP201**	**40**	**60**		**100**
Course 4 Physics and clinical measurements	**AIP229A**	**40**	**60**		**100**
General clinical courses					
Course 5 Internal Medicine	**AIP218**	**120**	**60**	**60**	**300**
Total of the first part					**700**
Second Part					
Speciality Courses:					
1) Course 4 Anesthesia and intensive care*	**AIP229B**	**480**	**360**	**360**	**1200**
Paper 1		**120**			
Paper 2		**120**			
Paper 3		**120**			
Paper 4		**120**			
Total of the degree					**1900**
Elective course		**50**	**50**		**100**

* 25% of the oral exam for assessment of logbook

* **Anesthesia and intensive care**

Units' **(Module)**Titles' list	% from total Marks	Degrees			
		Written Exam	Oral Exam	Practical / Clinical Exam	Total
1) Unit (Module)1 Anesthesia	**80%**	384	288	288	960
2) Unit (Module)2 " Intensive Care	**15%**	72	54	54	180
3) Unit (Module)3 " pain management	**5%**	24	18	18	60
Total No. of Units (Modules):	**3**	480	360	360	1200

* 25% of the oral exam for assessment of logbook

Total degree 1900

700 marks for first part

1200 for second part

Written exam 40% (480 marks).

Clinical /practical and oral exams 60% (720 marks)

Examination system:

➢ **First part:**

- Written exam 2 hours in Pharmacology + Oral exam
- Written exam 2 hours in Physiology + Oral exam
- Written exam 2 hours in Anatomy + Oral exam
- Written exam 2 hours in Physics and clinical measurements + Oral exam
- Written exam 3 hours in Internal Medicine + Oral exam+ Clinical exam

➢ **Second part:**

- Written exam four papers 3 hours for each in Anesthesia and intensive care + Oral exam+ Clinical & Practical exam

➢ **Elective courses**

- Written exam one paper 1 hour in Elective course + Oral & Practical exam

10-Program evaluation

By whom	Method	sample
Quality Assurance Unit	Reports Field visits	#
External Evaluator (s):According to department council External Examiner (s): According to department council	Reports Field visits	#
Stakeholders	Reports Field visits Questionnaires	#
Senior students	Questionnaires	#
Alumni	Questionnaires	#

#Annex 5 contains evaluation templates and reports (Joined in the departmental folder).

11-Declaration

We certify that all of the information required to deliver this program is contained in the above specification and will be implemented.

All course specifications for this program are in place.

Contributor	Name	Signature	Date
Program Principle Coordinator:	Prof. Hamdy Abbas Youssef		
Head of the Responsible Department (Program Academic Director):	Prof. Hany El-Morabaa		

Annex 1, Specifications for Courses / Modules

Annex 1: specifications for courses/

Course 1 (pharmacology)

Name of department: ***Anesthesia and post-operative Intensive Care***
Faculty of medicine
Assiut University
2016-2017

1. Course data

- **Course Title: pharmacology**
- **Course code: AIP206**
- **Speciality Anesthesia and post-operative Intensive Care**
- **Number of credit points: 2 credit point, didactic 1 credit point (100%)**
- **Department (s) delivering the Course: pharmacology in conjunction with Anesthesia and post-operative Intensive Care Coordinator (s):**
- **Course coordinator(s): Staff members of Pharmacology Department in conjunction with Anesthesia and post-operative Intensive Care Department as annually approved by both departments councils**
- **Date last reviewed: September 2017**
- **General requirements (prerequisites) if any :**
  None
- **Requirements from the students to achieve Course ILOs are clarified in the joining log book.**

2. Course aims

The student should acquire the pharmacological background necessary for anesthesia and postoperative intensive care

3. Course intended learning outcomes (ILOs):

A. Knowledge and understanding

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Mention Pharmacological principles of: -Introduction to Pharmacology and Drug Doses -Pharm kinetics and Anesthesia -Pharmacodynamics and Receptor Physiology -drug-drug interaction related to anesthesia -The Pharmacology of the Autonomic Nervous System -Intravenous Drugs used for the Induction of Anesthesia -Pharmacology of Inhalational Anesthetics -Pharmacology of Neuromuscular Blocking Drugs and Anticholinesterases -Local Anesthetic Pharmacology	Lectures	- Written and oral examination - Log book

B. Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of pharmacology with clinical reasoning, diagnosis and management of common diseases related to anesthesia and post operative intensive care.	-Didactic (lectures, seminars, tutorial)	-Written and oral examination - Log book
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to anesthesia and post operative intensive care.		

C. Practical skills

Practical: 0 credit point

D. General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Use information technology to manage information, access on-line medical information; and support their own education.	-Observation and supervision -Written & oral communication	-Log book -Oral exam

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
B. Write a report in the conditions mentioned in A.A	Observation and supervision Written & oral communication	-Log book - Oral exam - Check list

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
C. Demonstrate a commitment to ethical principles.	-Observation - Senior staff experience	-Log book - Oral exam

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Work effectively in relevant health care delivery settings and systems.	Observation - Senior staff experience	-360o global rating

4. Course contents (topic s/modules/rotation
Course Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge **A**	**Intellectual** B	**Practical skills** **C**	**General Skills** **D**
Introduction to Pharmacology and Drug Doses	A	A,B	-	A-D
Pharmokinetics and Anesthesia	A	A,B	-	A-D
Pharmacodynamics and Receptor Physiology	A	A,B	-	A-D
drug-drug interaction related to anesthesia	A	A,B	-	A-D
The Pharmacology of the Autonomic Nervous System	A	A,B	-	A-D
Intravenous Drugs used for the Induction of Anesthesia	A	A,B	-	A-D
Pharmacology of Inhalational Anesthetics	A	A,B	-	A-D
Pharmacology of Neuromuscular Blocking Drugs and Anticholinesterases	A	A,B	-	A-D
Local Anesthetic Pharmacology	A	A,B	-	A-D

5. Course methods of teaching/learning:

1. lectures

6. Course methods of teaching/learning: for students with poor achievements

1. lectures

7. Course assessment methods:

i. Assessment tools:

1. Written and oral examination
2. Log book

ii. Time schedule: At the end of the first part

iii. Marks: 100

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

- Alex S Evers: Anesthetic Pharmacology 1st edition 2013
- Basic & Clinical Pharmacology, 11th Edition. By Bertram Katzung, Anthony Trevor, Susan Masters. Publisher: McGraw-Hill

iii. Recommended books

- Godman Gilmans. The pharmacological therapeutics. 11th Ed, 2016

iv. Periodicals, Web sites, … etc

➢ **Periodicals,**

- Anesthesia and analgesia
- Journal of pain
- Anesthesia journal
- Bja
- British journal f pharmacology
- Pharmacological review

v. others : None

9. Signatures

Course Coordinator: ……	**Head of the Department:** ……
Date: ……	**Date:** ……

Course 2 (physiology)

Name of department: ***Anesthesia and post-operative Intensive Care***
Faculty of medicine
Assiut University
2016-2017

1. Course data

- **Course Title: Physiology**
- **Course code: AIP203**
- **Speciality Anesthesia and post-operative Intensive Care**
- **Number of credit points: 2 credit point, didactic 1 credit point (100%)**
- **Department (s) delivering the Course: Physiology in conjunction with Anesthesia and post-operative Intensive Care Coordinator (s):**
- **Course coordinator: Staff members of Physiology Department in conjunction with Anesthesia and post-operative Intensive Care Department as annually approved by both departments councils**
- **Date last reviewed: September 2017**
- **General requirements (prerequisites) if any :**
  None
- **Requirements from the students to achieve Course ILOs are clarified in the joining log book.**

2. Course aims

The student should acquire the physiological background necessary for anesthesia and postoperative intensive care

3. Course intended learning outcomes (ILOs):

A) Knowledge and understanding

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Describe Physiologic details of 1.Cardiovascular Physiology 2.Aspects of Myocardial Physiology 3.Cerebral Blood Flow and Intracranial Pressure 4.The Autonomic Nervous System – Basic Physiology 5.The Physiology of Neuromuscular Junction 6.Body Fluid Compartments, Sodium and Potassium physiology 7. Respiratory 8. Physiology Renal Physiology 9.Liver Physiology 10. Endocrine Physiology 11. Physiology of Pain 12. Physiological Changes Associated with Pregnancy, pediatric and elderly patients.	Lectures	- Written and oral examination - Log book

B) Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of physiology with clinical reasoning, diagnosis and management of common diseases related to anesthesia and post operative intensive care.	-Didactic (lectures, seminars, tutorial)	-Written and oral examination - Log book
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to anesthesia and post operative intensive care.		

C) Practical skills

Practical: 0 credit point

D) General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Use information technology to manage information, access on-line medical information; and support their own education.	-Observation and supervision -Written & oral communication	-Log book - Oral exam

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
C. Write a report in the conditions mentioned in A.A	Observation and supervision Written & oral communication	-Log book - Oral exam - Check list

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
C. Demonstrate a commitment to ethical principles.	-Observation - Senior staff experience	-Log book - Oral exam

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
E. Work effectively in relevant health care delivery settings and systems.	-Observation - Senior staff experience	360o global rating

4. Course contents (topic s/modules/rotation
Course Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge **A**	**Intellectual** B	**Practical skills** **C**	**General Skills** **D**
Cardiovascular Physiology	A	A,B	-	A-D
Aspects of Myocardial Physiology	A	A,B	-	A-D
Cerebral Blood Flow and Intracranial Pressure	A	A,B	-	A-D
The Autonomic Nervous System – Basic Physiology	A	A,B	-	A-D
The Physiology of Neuromuscular Junction	A	A,B	-	A-D
Body Fluid Compartments, Sodium and Potassium physiology	A	A,B	-	A-D
Respiratory Physiology	A	A,B	-	A-D
Renal Physiology	A	A,B	-	A-D
Liver Physiology	A	A,B	-	A-D
Endocrine Physiology	A	A,B	-	A-D
Physiology of Pain	A	A,B	-	A-D
Physiological Changes Associated with Pregnancy, pediatric and elderly patients.	A	A,B	-	A-D

5. Course methods of teaching/learning:

2. Lectures

6. Course methods of teaching/learning: for students with poor achievements

2. lectures

7. Course assessment methods:

i. Assessment tools:

3. Written and oral examination
4. Log book

ii. Time schedule: At the end of the first part

iii. Marks: 100

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

- Guyton AC, Hall JE: Textbook of Medical Physiology, 11th ed. Saunders, 2016.
- Miller R.D., Cucchiara RF et al, (2010): Anesthesia, 5th edition, vol(1).

iii. Recommended books

- Gillian Pocock, Christopher D. Richards: Human Physiology the Basis of Medicine. Oxfordcore texts, 2015

iv. Periodicals, Web sites, … etc

➢ **Periodicals,**

- Anesthesia and analgesia
- Journal of pain
- Anesthesia journal
- Bja
- American journal of physiology.

v. others

- None

• 9. Signatures

Course Coordinator: ……	**Head of the Department:** ……
Date: ……	**Date:** ……

Course 3 (Anatomy)

Name of department: ***Anesthesia and post-operative Intensive Care***
Faculty of medicine
Assiut University
2016-2017

1. Course data

- **Course Title: Anatomy**
- **Course code: AIP201**
- **Speciality Anesthesia and post-operative Intensive Care**
- **Number of credit points: 2 credit point, didactic 1 credit point (100%)**

- **Department (s) delivering the course: Anatomy in conjunction Anesthesia and post-operative Intensive Care**
- **Unit coordinator: Staff members of Anatomy Department in conjunction with Anesthesia and post-operative Intensive Care as annually approved by both departments councils**
- **Date last reviewed: September 2017**
- **General requirements (prerequisites) if any :**
  - **None**
- **Requirements from the students to achieve course ILOs are clarified in the joining log book.**

2. Course Aims

The student should acquire the anatomic facts necessary for Anesthesia and postoperative intensive care.

3. Course intended learning outcomes (ILOs):

A- Knowledge and understanding

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Describe anatomic details of *Upper respiratory tract including pharynx, larynx, trachea * Bronchial tree * Lungs * Pleura *Thoracic cage * Mediastinum * Heart and great vessels	Lectures	Written and oral examination Log book

B- Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of anatomy with clinical reasoning, diagnosis and management of common diseases related to Anesthesia and postoperative intensive care.	Didactic (lectures, seminars, tutorial)	Written and oral examination Log book

C- Practical skills

Practical 0 credit point

D- General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Use information technology to manage information, access on-line medical information; and support their own education.	-Observation and supervision -Written & oral communication	-Log book - Oral exam

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
B. Write a report in the conditions mentioned in A.A	-Observation and supervision -Written & oral communication	-Log book - Oral exam - Check list

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
C. Demonstrate a commitment to ethical principles.	-Observation -Senior staff experience	-Log book - Oral exam

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Work effectively in relevant health care delivery settings and systems.	-Observation -Senior staff experience	--360o global rating

4. Course contents (topic s/modules/rotation
Course Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge **A**	**Intellectual** B	**Practical skills** C	**General Skills** **D**
- Upper respiratory tract including pharynx, larynx, trachea	A	A	A,B	A-D
- Bronchial tree	A	A	A,B	A-D
- Lungs	A	A	A,B	A-D
- Pleura	A	A	A,B	A-D
- Chest wall	A	A	A,B	A-D
- Mediastinum	A	A	A,B	A-D
- Heart and great vessels	A	A	A,B	A-D

5. Course methods of teaching/learning:

1. **Lectures**
2. **Laboratory work**

6. Course methods of teaching/learning: for students with poor achievements

1. **Lectures**
2. **Laboratory work**

7. Course assessment methods:

i. Assessment tools:

a. Written and oral examination
b. Log book

ii. Time schedule: At the end of the first part

iii. Marks: 100

8. List of references

i. Lectures notes

- Staff members print out of lectures.
- Anatomy and embryology books by staff members of anatomy department, Assiut University.

ii. Essential books

- Miller R.D., Cucchiara RF et al, (2010): Anesthesia, 5th edition, vol(1).
- Fitzgerald M.J.T. (2015): The anatomical basis of medicine and surgery. By Standing s., ELIS H., Healy J. C., Johnson D. and Williams A. Gray's Anatomy. Elsevier; London, New York. Sydny. Toronto.

iii. Recommended books

- McMinn R.M.H. (2014): Lasts anatomy regional and applied chapter 7; ninth edition, edited by Longman group UK.
- A colored Atlas of Human anatomy and Embryology.

iv. Periodicals, Web sites, … etc

- American Journal of Anatomy
- British journal of anatomy

v. others

- None

9. Signatures

Course Coordinator: **…….**	**Head of the Department:** **……**
Date: ……	**Date: ……**

Course 4 (Physics and clinical measurements)

Name of department: ***Anesthesia and post-operative Intensive Care***
Faculty of medicine
Assiut University
2016-2017

1. Course data

- **Course Title: Physics and measurements**
- **Course code: AIP229A**
- **Speciality Anesthesia and post-operative Intensive Care**
- **Number of credit points: 2 credit point, didactic 1 credit point (100%)**
- **Department (s) delivering the course: Anesthesia and post-operative Intensive Care**
- **Course coordinator: Staff members of Anesthesia and post-operative Intensive Care Department as annually approved by department council**
- **Date last reviewed: : September 2017**
- **General requirements (prerequisites) if any :**
- **None**
- **Requirements from the students to achieve course ILOs are clarified in the joining log book.**

2. Course aims

The student should acquire the Physics and clinical measurements background necessary for anesthesia and postoperative intensive care

3. Course intended learning outcomes (ILOs):

A. Knowledge and understanding

Competency and Skills	Methods of teaching/ learning	Methods of Evaluation
A. Illustrate principles of - SI Units - Electricity and Magnetism - The Physics of Flow - Pressure and Blood Pressure Monitoring Biological Signals and their Measurement - Practical Applications of Pulse Oximetry - Respiratory Gas Analysis Vaporizers - Anesthetic Breathing Systems - Anesthetic Gas Scavenging Gases and Vapors - Humidification - Heat Production and Loss	1. Lectures	- Written and oral examination - Log book

B. Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of Physics and measurements with clinical reasoning, diagnosis and management of common diseases related to anesthesia and post operative intensive care.	-Didactic (lectures, seminars, tutorial)	-Written and oral examination - Log book
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to anesthesia and post operative intensive care.		

C. Practical skills

Practical: 0 credit point

D. General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Use information technology to manage information, access on-line medical information; and support their own education.	-Observation and supervision -Written & oral communication	-Log book -Oral exam

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
C. Write a report in the conditions mentioned in A.A	Observation and supervision Written & oral communication	-Log book -Oral exam - Check list

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
C. Demonstrate a commitment to ethical principles.	-Observation -Senior staff experience	- Oral Exam - Logbook

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Work effectively in relevant health care delivery settings and systems.	Observation - Senior staff experience	-360o global rating

4. Course contents (topic s/modules/rotation
Course Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge **A**	**Intellectual** B	**Practical skills** **C**	**General Skills** D
- SI Units	A	A,B	-	A-D
- Electricity and Magnetism	A	A,B	-	A-D
- The Physics of Flow	A	A,B	-	A-D
- Pressure and Blood Pressure Monitoring	A	A,B	-	A-D
Biological Signals and their Measurement	A	A,B	-	A-D
- Practical Applications of Pulse Oximetry	A	A,B	-	A-D
- Respiratory Gas Analysis	A	A,B	-	A-D
Vaporizers	A	A,B	-	A-D
- Anesthetic Breathing Systems	A	A,B	-	A-D
- Anesthetic Gas Scavenging	A	A,B	-	A-D
Gases and Vapors	A	A,B	-	A-D
- Humidification	A	A,B	-	A-D
- Heat Production and Loss	A	A,B	-	A-D
- Fires and Explosions in the Operating Room	A	A,B	-	A-D

5. Course methods of teaching/learning:

3. Lectures

6. Course methods of teaching/learning: for students with poor achievements

3. lectures

7. Course assessment methods:

i. Assessment tools:

5. Written and oral examination
6. Log book

ii. Time schedule: At the end of the first part

iii. Marks: 100

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

- Basic physics & measurement in anesthesia; Davis P.D., Parbrook G. D. and Kenny C.N., 4th edition, Butterworth Heirmann, 24th edition, 2022

iii. Recommended books

- Alex S Evers: Anesthetic Pharmacology 1st edition 2017

iv. Periodicals, Web sites, … etc

➢ **Periodicals,**

- Anesthesia and analgesia
- Journal of pain
- Anesthesia journal
- Bja

v. others : None

9. Signatures

Course Coordinator: ……	**Head of the Department:** ……
Date: ……	**Date:** ……

Course 5 Internal medicine

Name of department: ***Anesthesia and post-operative Intensive Care***
Faculty of medicine
Assiut University
2016-2017

1. Course data

- **Course Title: Internal Medicine**
- **Course code: AIP218**
- **Speciality Anesthesia and post-operative Intensive Care**
- **Number of credit point: 16 credit point, Didactic 6 credit point (37.5%), training 10 credit point (62.5%)**
- **Department (s) delivering the course: Internal Medicine**
- **Course coordinator:): Staff members of Anesthesia and post-operative Intensive Care Department and Internal Medicine Department as annually approved by both departments council**
- **Date last reviewed: : September 2017**
- **General requirements (prerequisites) if any :**
- **None**
- **Requirements from the students to achieve course ILOs are clarified in the joining log book.**

2. Course aims

- To make the students able to be familial with the diagnosis and management of common medical problems that may be encountered with anesthesia and post operative intensive care
- To make the students able to deal with medical emergencies safely and effectively as regard their investigations and management.

3. Course intended learning outcomes (ILOs):

A. Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
A. Describe the etiology, clinical picture, diagnosis and management of the following diseases and clinical conditions: Cardiology Heart failure Rheumatic fever Valvular heart diseases Arrhythmia Hypertension Nephrology Renal failure Nephritis Nephrotic syndrome Haematology Lymphomas Anemia Coagulation disorders Neurological diseases Cerebrovascular stroke Myopathy	-Clinical round -Didactic (lectures, seminars, tutorial) -Case presentation -Hand on workshops, - Clinical rotation in the general medical emergency Unit	-Written and oral examination -Log book

Endocrinology Diabetes mellitus Thyroid diseases Adrenal gland diseases Obesity Hepatology &Gastroenterology Liver cirrhosis and liver cell failure Collagen vascular and systemic diseases		
B. Mention the principles of basics of general medicine		
C. State update and evidence based Knowledge of Hypertension Diabetes mellitus Coagulation disorders		
D. Memorize the facts and principles of the relevant basic supportive sciences related to Internal Medicine.		
E. Mention the basic ethical and medicolegal principles relevant to the Internal Medicine.		
F. Mention the basics of quality assurance to ensure good clinical care in his field		
G. Mention the ethical and scientific principles of medical research		
H. State the impact of common health problems in the field of Internal Medicine on the society.		

B. Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases related to Internal Medicine.	-Clinical rounds -Senior staff experience	-Procedure & case presentation -log book & portfolio
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to Internal Medicine.		
C. Design and present cases, seminars in common problem.		
D-Formulate management plans and alternative decisions in different situations in the field of the Internal Medicine.		

C) Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Obtain proper history and examine patients in caring and respectful behaviors.	-Clinical round -Seminars -Lectures -Tutorial -Case presentation -Hand on workshops, -Clinical rotation in the general	-OSCE -log book & portfolio -Clinical exam in internal medicine

	medical emergency Unit	
B. Order the following non invasive and invasive diagnostic procedures Routine appropriate Lab investigations related to conditions mentioned in A.A ECG ESR, blood culture. Echocardiography. Blood picture Blood chemistry Metabolic profile:[i.e. serum electrolytes] Chest x rays Endocrinal profile Rheumatoid factor, ANF, LE cells.	-Clinical round with senior staff -Observation Post graduate teaching -Hand on workshops	-OSCE -log book & portfolio -Clinical exam in internal medicine
C. Interpret the following non invasive and invasive diagnostic procedures Routine appropriate Lab investigations related to conditions mentioned in A.A ECG . ESR, blood culture. Echocardiography. Blood picture Blood chemistry Metabolic profile:[i.e. serum electrolytes] Chest x rays Endocrinal profile Rheumatoid factor, ANF, LE cells.	-Clinical round with senior staff -Observation Post graduate teaching -Hand on workshops	
D. Perform the following non invasive and invasive diagnostic and therapeutic procedures ECG	-Clinical round with senior staff -Observation Post graduate	

	teaching -Hand on workshops	
E. Prescribe the following non invasive and invasive therapeutic procedures : • proper treatment for conditions mentioned in A.A	- Clinical round with senior staff -Perform under supervision of senior staff	- Procedure presentation - Log book - Chick list
F. Carry out patient management plans for common conditions related to Internal Medicine mentioned in A.A.	- Clinical round with senior staff - Perform under supervision of senior staff	
G. Use information technology to support patient care decisions and patient education in common clinical situations related to Internal Medicine.		
H. Provide health care services aimed at preventing health problems related to Internal Medicine.		
I. Provide patient-focused care in common conditions related to Internal Medicine, while working with health care professionals, including those from other disciplines like: Conditions mentioned in A.A		

D. General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook)	-Case log -Observation and supervision -Written & oral communication	--Log book & portfolio -Procedure & case presentation
B. Appraises evidence from scientific studies(journal club)	- Case log - Observation and supervision - Written & oral communication - Journal clubs - Discussions in seminars and clinical rounds	--Log book & portfolio -Procedure & case presentation
C. Conduct epidemiological Studies and surveys.		
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals.	-Clinical rounds -Senior staff experience	

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain therapeutic and ethically sound relationship with patients.	-Simulations -Clinical round -Seminars -Lectures -Case presentation -Hand on workshops	-Global rating -Procedure &case presentation -Log book & portfolio -Chick list
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team or other professional group.		
J. Present a case in • Common problems of Internal Medicine.		
K. Write a report • Patients' medical reports • ECG	-Senior staff experience	
L. Council patients and families about • Conditions mentioned in A.A	-Perform under supervision of senior staff	

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
M. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	-Observation Senior staff experience -Case taking	-Objective structured clinical examination -Patient survey
N. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		- 360o global rating
O. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		-Objective structured clinical examination -360o global rating

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
P. Work effectively in relevant health care delivery settings and systems.	- Observation -Senior staff experience	-360o global rating
Q. Practice cost-effective health care and resource allocation that does not compromise quality of care.		-Check list evaluation of live or recorded performance
R. Assist patients in dealing with system complexities.		-360o global rating - Patient survey

4. Course contents (topic s/modules/rotation
Course Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge A	Intellectual B	Practical skills C	General Skills D
Cardiology				
Heart failure	A,B,D-H	A-D	A-I	A-R
Rheumatic fever	A,B,D-H	A-D	A-I	A-R
Valvular heart diseases	A,B,D-H	A-D	A-I	A-R
Arrhythmia	A,B,D-H	A-D	A-I	A-R
Hypertension	A-H,D-H	A-D	A-I	A-R
Nephrology				
Renal failure	A,BD-H	A-D	A-I	A-R
Nephritis	A,B,D-H	A-D	A-I	A-R
Nephrotic syndrome	A,B,D-H	A-D	A-I	A-R
Hematology				
Lymphomas	A,B,D-H	A-D	A-I	A-R
Anemia	A,B,D-H	A-D	A-I	A-R
Coagulation disorders	A-H	A-D	A-I	A-R
Neurological diseases				
Cerebrovascular stroke	A,B,D-H	A-D	A-I	A-R
Myopathy	A,B,D-H	A-D	A-I	A-R
Endocrinology				
Diabetes mellitus	A-E	A-D	A-I	A-R
Thyroid diseases	A,B,D-H	A-D	A-I	A-R
Adrenal gland diseases	A,B,D-H	A-D	A-I	A-R
Obesity	A,B,D-H	A-D	A-I	A-R
Hepatology &Gastroenterology				
Liver cirrhosis and liver cell	A,B,D-H	A-D	A-I	A-R

failure				
Collagen vascular and systemic diseases				
Collagen vascular and systemic diseases	A,B,D-H	A-D	A-I	A-R

5. Course methods of teaching/learning:

1. Didactic (lectures, seminars, tutorial)
2. Clinical rounds
3. Seminars Clinical rotations
4. Service teaching
5. Observation
6. Post graduate teaching
7. Hand on workshops
8. Perform under supervision of senior staff
9. Simulations
10. Case presentation
11. Observation and supervision
12. Written & oral communication

6. Course methods of teaching/learning: for students with poor achievements

1. Extra Didactic (lectures, seminars, tutorial) according to their needs
2. Extra training according to their needs

7. Course assessment methods:

i. Assessment tools:

Assessment tools:

1. Clinical examination
2. Written and oral examination
3. Chick list
4. log book & portfolio
5. Procedure and case presentation
6. Objective structured clinical examination
7. Check list evaluation of live or recorded performance
8. Patient survey
9. 360o global rating

ii. Time schedule: At the end of the first part

iii. Marks: 300

8. List of references

Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies
- Book by Staff Members of the Department of Anesthesia and postoperative intensive care - Assiut University

ii. Essential books

- Davidson's Principles and Practice of Medicine - 20th Edition - 2016-07
- Hutchison's Clinical Methods; Robert Hutchison; Harry Rainy; 21st edition;2003

iii. Recommended books

- Harrison's Principles of Internal Medicine, 17th Edition by Anthony Fauci, Eugene Braunwald, Dennis Kasper, and Stephen Hauser (Hardcover - Mar 6 2008)

iv. Periodicals, Web sites, … etc

- Internal medicine journal
- Annals of Internal medicine journal
- Journal of General Internal Medicine

v. others : None

9. Signatures

Course Coordinator: **…….**	**Head of the Department:** **……**
Date: ……	**Date: ……**

Second Part

Course 6 Anesthesia and Intensive care

Name of department: Anesthesia and post operative intensive care
Faculty of medicine
Assiut University
2016-2017

1. Course data

- **Course Title:** Anesthesia and Intensive care
- **Course code: AIP229B**
- **Speciality is** Anesthesia and post operative intensive care
- **Number of hours: Number of credit points: 134, didactic 24 credit points (17.9%), practical 110 credit points (82.1%).**

- **Department (s) delivering the course:** Department of Anesthesia and post operative intensive care
- **Coordinator (s):**
  Principle coordinator: Prof. Hamdy Abbas Youssef
  Assistant coordinator (s):
  Prof. Fatma Ahmed Abd El Aal
- **Date last reviewed: : September** 2017
- **General requirements (prerequisites) if any :**
  None
- **Requirements from the students to achieve course ILOs are clarified in the joining log book.**

- **This course consists of 3 Units(Modules)**
  1-Unit (Module) 1 Anesthesia
  2- Unit (Module) 2 Intensive Care
  3- Unit (Module) 3 Pain management

2. Course aims

1. To teach and learn high level of clinical skills, in addition to update medical knowledge as well as clinical experience and competence in the area of Anesthesia and post operative intensive care.
2. Provide candidates with fundamental knowledge of dealing with patients during pre- intra- and post operative periods.
3. To provide knowledge about chronic pain management during different circumstances especially in cancer patients.
4. Provide candidates with fundamental knowledge of intensive care medicine as regards; dealing with critically ill medical, post operative, trauma, and obstetric patients.

3. Course intended learning outcomes (ILOs):

Unit (Module) 1 Anesthesia

A- Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
A. Describe the etiology, clinical picture, diagnosis and management of the following diseases and clinical conditions: Cardiovascular diseases: 1. ischemic heart diseases 2. hypertension 3. heart failure 4. valvular heart diseases. 5. congenital heart diseases. Respiratory disorders 1. Restrictive lung diseases. 2. Obstructive lung diseases. Liver diseases: 1. acute hepatitis 2. chronic hepatitis 3. liver cirrhosis renal diseases: 1. renal impairment 2. acute renal failure 3. chronic renal failure endocrine diseases: 1. diabetes mellitus 2. pheochromocytoma 3. adrenal disorders 4. thyroid disorders 5. parathyroid disorders 6. pituitary disorders	- Didactic; Lectures Clinical rounds Seminars Clinical rotations (service teaching)	--OSCE at the end of each year -log book & portfolio - One MCQ examination at the second year -Oral and written exam

Neuromuscular diseases Neuropsychiatric Disease Anemia or Coagulation Disorders Malnutrition Evaluation of Children Evaluation of the Geriatric Patient • Evaluation of the Pregnant Patient		
B. Mention the principles of 1) Airway management 2) Monitoring of various body function 3) Cardiopulmonary resuscitation 4) Theories of mechanism of action of general and local anesthesia 5) Principles of preoperative patient preparation. 6) Postoperative patient care and acute pain management. 7) Cardiopulmonary resuscitation 8) Neuroanesthesia 9) Cardiac Anesthesia 10) Anesthesia for Surgical Treatment of Congenital Heart Disease 11) Thoracic Anesthesia 12) Anesthesia for Major Vascular Surgery 13) Anesthesia for Gastrointestinal Surgery 14) Anesthesia for Kidney, Pancreas, or Other Organ Transplantation 15) Endocrine Surgery and Intraoperative Management of Endocrine Conditions 16) Anesthetic Considerations for Genitourinary and Renal Surgery 17) Anesthesia for Obstetric Care and		

Gynecologic Surgery 18) Anesthesia for Newborn Surgical Emergencies 19) Anesthesia for Children 20) Anesthesia for Orthopedic Surgery 21) Anesthesia for Ophthalmic Surgery 22) Anesthesia for Otorhinolaryngolic (Ear, Nose, and Throat) Surgery 23) Outpatient Anesthesia 24) Anesthesia Care for Diagnostic or Therapeutic 25) Procedures Outside of the Operating Room 26) Anesthesia for Trauma Patients 27) Anesthetic Management of the Burned patients • Postoperative complications		
C. State update and evidence based Knowledge of Conditions mentioned in A		
D. Memorize the facts and principles of the relevant basic and clinically supportive sciences related to Anesthesia.		
E. Mention the basic ethical and medicolegal principles that should be applied in practice and are relevant to Anesthesia.		
F. Mention the basics and standards of quality assurance to ensure good clinical practice in the field of Anesthesia.		
G. Mention the ethical and scientific principles of medical research methodology		
H. State the impact of common health problems in the field of Anesthesia on the society and how good clinical practice improve these problems.		

B- Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of relevant basic and clinically supportive sciences with clinical reasoning, preparation and anesthetic management of common diseases related to Anesthesia.	-Clinical rounds -Senior staff experience	-Procedure & case presentation -log book & portfolio
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to Anesthesia.		
C. Design and /or present a case or review (through seminars/journal clubs.) in one or more of common clinical problems relevant to the field of Anesthesia.		
D-Formulate management plans and alternative decisions in different situations in the field of Anesthesia.		

C- Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Obtain proper history and examine patients in caring and respectful behaviors.	-Didactic (lectures, seminars, tutorial) -Clinical rounds -Clinical rotations (service teaching)	-OSCE at the end of each year -log book & portfolio - One MCQ examination at the second half of the second

		year
B. Order the following non invasive and invasive diagnostic procedures - Routine preoperative investigations • Complete blood picture. • Renal function test. • Liver function test • Random blood sugar • Coagulation profile • Electrocardiogram • Chest X-ray - Diagnostic procedure related to conditions mentioned above	-Clinical round with senior staff -Observation -Post graduate teaching -Hand on workshops	-Procedure presentation - Log book - Chick list
C. Interpret the following non invasive and invasive diagnostic procedures • Routine appropriate Lab investigations related to conditions mentioned in A.A • X ray Chest • ECG • Arterial blood gas • Pulmonary function testing	-Clinical round with senior staff -Observation -Post graduate teaching -Hand on workshops	
E. Perform the following non invasive and invasive diagnostic and therapeutic procedures • Airway management • Arterial blood gases • Local anesthetic techniques • Central venous catheter insertion	-Clinical round with senior staff -Observation Post graduate teaching -Hand on workshops	
F. Carry out patient management plans for common conditions related to Anesthesia.	- Clinical round with senior staff - Perform under supervision of	

	senior staff	
G. Use information technology to support patient care decisions and patient education in common clinical situations related to Anesthesia.		
H. Provide health care services aimed at preventing health problems related to Anesthesia.		
I. Provide patient-focused care in common conditions related to Anesthesia, while working with health care professionals, including those from other disciplines like: • Conditions mentioned in A.A		
J. Write competently all forms of patient charts and sheets including reports evaluating these charts and sheets.(Write a consultation note, Inform patients of a diagnosis and therapeutic plan, completing and maintaining medical records)		

D- General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(share in audit and risk management activities and use logbook).	-Case log -Observation and supervision -Written & oral communication	--Log book & portfolio -Procedure & case presentation
B. Appraises evidence from scientific studies(journal club)	- Case log - Observation and supervision - Written & oral communication - Journal clubs	--Log book & portfolio -Procedure & case presentation

	- Discussions in seminars and clinical rounds	
C. Conduct epidemiological Studies and surveys.		
D. Perform data management including data entry and analysis using information technology to manage information, access on-line medical information; and support their own education.		
E. Facilitate learning of junior students and other health care professionals including their evaluation and assessment.	-Clinical rounds -Senior staff experience	

Interpersonal and Communication Skills

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
F. Maintain therapeutic and ethically sound relationship with patients.	-Simulations -Clinical round -Seminars -Lectures -Case presentation -Hand on workshops	-Global rating -Procedure &case presentation -Log book & portfolio -Chick list
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team or other professional group.		
K .Write a report • Patients' anesthetic sheet reports • ABGs reports	-Senior staff experience	

L. Council patients and families about • Alternative of anesthetic procedures • Post operative care of surgical patients	-Perform under supervision of senior staff	

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
M. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	-Observation Senior staff experience -Case taking	-Objective structured clinical examination -Patient survey
N. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		- 360o global rating
O. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		-Objective structured clinical examination -360o global rating

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
P. Work effectively in relevant health care delivery settings and systems including good administrative and time management.	-Observation -Senior staff experience	-360o global rating
Q. Practice cost-effective health care and resource allocation that does not compromise quality of care.		-Check list evaluation of live or recorded performance
R. Assist patients in dealing with system complexities.		-360o global rating - Patient survey

Unit (Module) 2 Intensive Care

A- Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
<u>A. Describe the etiology, clinical picture, diagnosis and management of the following diseases and clinical conditions:</u> 1. Shock • Hypovolemic Shock • Distributive Shock with special consideration to septic shock • Cardiac Shock 2. Respiratory Failure • Acute Respiratory Failure • Acute Respiratory Failure from Specific Disorders with special consideration to ARDS 3. Critical Illness in Patients with Chronic Renal Failure 4. Gastrointestinal Failure in the ICU • Pancreatitis • Bowel Obstruction • Obstruction of the Large Bowel • A dynamic (Paralytic) Ileus • Diarrhea & Malabsorption • Pancreatic Insufficiency • Lactase Deficiency • Diarrhea 5. Infections and sepsis in the Critically Ill 6. Surgical Infections by Body Site 7. Management of the Elderly Patient in the ICU 8. Cardiac Problems in Critical Care	-Didactic (lectures, seminars, tutorial) - journal club, -Critically appraised topic, Educational prescription -Present a case (true or simulated) in a grand round	-Log book& Portfolio -Oral exam & Written exam

• Atrial Arrhythmias • Ventricular Arrhythmias • Heart Block • Cardiac Problems during Pregnancy • Toxic Effects of Cardiac Drugs 9. Cardiothoracic Surgery • Aneurysms, Dissections, & Transections of the Great Vessels • Postoperative Arrhythmias • Bleeding, Coagulopathy, & Blood Product,Utilization • Circulatory Arrest, & Ventricular,Assistance • Postoperative Low-Output States 10. Pulmonary Disease • Status Asthmaticus • Life-Threatening Hemoptysis • Deep Venous Thrombosis & Pulmonary • Thromboembolism • Anaphylaxis • Angioedema 11. Endocrine Problems in the Critically Ill Patient • Thyroid Storm • Myxedema Coma • Acute Adrenal Insufficiency • Sick Euthyroid Syndrome 12. Diabetes Mellitus, Hyperglycemia. • Diabetic Ketoacidosis • Hyperglycemic Hyperosmolar • Nonketotic Coma • Management of the Acutely Ill Patient with Hyperglycemia or Diabetes Mellitus • Hyperglycemia • Hypoglycemia • Other Complications of Diabetes Mellitus		

13. Vascular Emergencies in the ICU 14. Critical Care of Neurologic Disease • Encephalopathy & Coma • Seizures • Neuromuscular Disorders • Cerebrovascular Diseases 15. Neurosurgical Critical Care • Head Injuries • Aneurysmal Subarachnoid Hemorrhage • Tumors of the Central Nervous System • Cervical Spinal Cord Injuries 16. Acute Abdomen 17. Gastrointestinal Bleeding • Upper Gastrointestinal Bleeding • Lower Gastrointestinal Bleeding 18. Hepatobiliary Disease • Acute Hepatic Failure • Acute Gastrointestinal Bleeding from Portal Hypertension • Ascites • Hepatorenal Syndrome • Liver Resection in Patients with Cirrhosis 19. Poisonings & Ingestions 20. Care of Patients with Environmental Injuries • Heat Stroke • Hypothermia • Frostbite • Near-Drowning • Envenomation • Electric Shock & Lightning Injury • Radiation Injury 21. Management of Critical Complications of Pregnancy 22. Disorders Fluids, Electrolytes, & Acid-Base		

23. Nutrition & Malnutrition in the Critically Ill Patient		
B. Mention the principles of • Basic and advanced life support • Indications of admission to ICU • Vascular access: • Airway management 1. Nasal and oral airways 2. Laryngeal mask airway 3. Endotracheal tube • Suction • Hemodynamic monitoring 1. Arterial blood pressure 2. Pulmonary artery pressure 3. Central venous pressure and pulmonary artery wedge pressure. 4. Arrhythmias 5. Hemodynamic drug infusion • Invasive& noninvasive assessment of arterial blood gases 1. Acid base status 2. Hypoxemia and hypercapnia 3. Pulse oximetry • The most common electrolyte disorders 1. Hypokalemia 2. Hypomagnesemia 3. Hyponatremia 4. Hypocalcaemia. • Infection in ICU 1. Ventilator associated pneumonia 2. Sepsis syndrome. 3. Empirical antibiotic therapy • Mechanical ventilation 1. Objectives of mechanical ventilation		

2. Indications of mechanical ventilation 3. Modes and settings of mechanical ventilation 4. Weaning from mechanical ventilation 5. Non invasive positive pressure ventilation 6. Complications of mechanical ventilation 7. Sedation and muscle relaxants • Nutrition 1. Entral tube feeding 2. Total parentral nutrition • Specific management and ventilatory strategies in pulmonary syndromes 1. ARDS 2. Cardiogenic pulmonary edema 3. Acute exacerbation of COPD 4. Status asthmatics 5. Acute pulmonary embolism 6. IPF 7. Pneumonia post-operative management of the following: • Open heart surgery. • Neurosurgery. • Vascular surgery. • Surgery for transplanted organs. • Major surgical conditions		
C. State update and evidence based Knowledge and ventilatory strategies in • ARDS • Sepsis • Head trauma • Obstetric complications		
D. Memorize the facts and principles of the relevant basic and clinically supportive sciences related to Intensive Care.		
E. Mention the basic ethical and medicolegal principles relevant that should be applied in practice		

and are to Intensive Care.		
F. Mention the basics and standards of quality assurance to ensure good clinical practice in the field of Intensive Care.		
G. Mention the ethical and scientific principles of medical research methodology		
H. State the impact of common health problems in the field of Intensive Care on the society and how good clinical practice improve these problems.		

B- Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases related to Intensive Care.	-Clinical rounds -Senior staff experience	-Procedure & case presentation -log book & portfolio
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to Intensive Care.		
C. Design and /or present a case or review (through seminars/journal clubs.) in one or more of common clinical problems relevant to the field of Intensive Care.		
D-Formulate management plans and alternative decisions in different situations in the field of Intensive Care.		

C- Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Obtain proper history and examine patients in caring and respectful behaviors.	-Didactic (lectures, seminars, tutorial) -Outpatient -Inpatient -Case presentation -Direct observation	- Log book - Objective structure clinical examination (OSCE) - One MCQ examination at the second half of the second year
B. Order the following non invasive and invasive diagnostic procedures • CVP (order) • Arterial blood gases • Ventilator adjustment • Investigations appropriate to conditions mentioned above	-Clinical round with senior staff -Observation -Post graduate teaching -Hand on workshops	-Procedure presentation - Log book - Chick list
C. Interpret the following non invasive and invasive diagnostic procedures • Hemodynamic Monitoring • ABGs	-Clinical round with senior staff -Observation -Post graduate teaching -Hand on workshops	
D. Perform the following non invasive and invasive	-Clinical	

diagnostic and therapeutic procedures • airway management • ABG sampling • CVP measurement • Ventilator adjustment • Chest care	round with senior staff -Observation Post graduate teaching -Hand on workshops	
E. Prescribe the following non invasive and invasive therapeutic procedures : • Syringe pump adjustment • Intubation • NIV &IPPV modes and settings	-Clinical round with senior staff -Perform under supervision of senior staff	- Procedure presentation - Log book - Chick list
F. Carry out patient management plans for common conditions related to Intensive Care.	- Clinical round with senior staff - Perform under supervision of senior staff	
G. Use information technology to support patient care decisions and patient education in common clinical situations related to Intensive Care.		
H. Provide health care services aimed at preventing health problems related Intensive Care like: • Hospital acquired pneumonia • Ventilator associated respiratory tract infection • Bed sores • Deep venous thrombosis • GIT bleeding • Psychological disturbances of the patients • Healthcare associated pneumonia		
I. Provide patient-focused care in common conditions related to Intensive Care, while working		

with health care professionals, including those from other disciplines like: • Conditions mentioned in A.A		
J. Write competently all forms of patient charts and sheets including reports evaluating these charts and sheets.(Write a consultation note, Inform patients of a diagnosis and therapeutic plan, completing and maintaining medical records)		

D- General Skills

Practice-Based Learning and Improvement

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
A. Perform practice-based improvement activities using a systematic methodology (share in audit and risk management activities and use logbook	-Case log -Observation and supervision -Written & oral communication	--Log book & portfolio
B. Appraises evidence from scientific studies (journal club)	- Case log - Observation and supervision - Written & oral communication - Journal clubs - Discussions in seminars and clinical rounds	--Log book & portfolio
C. Conduct epidemiological Studies and surveys.		
D. Perform data management including data entry and analysis using information technology to		

manage information, access on-line medical information; and support their own education		
E. Facilitate learning of junior students and other health care professionals including their evaluation and assessment.	-Clinical rounds -Senior staff experience	

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain therapeutic and ethically sound relationship with patients.	-Observation & supervision -Didactic	Simulation Record review (report)
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team or other professional group.		
J. Present a case in • Common problems of Intensive Care.		
K. Write a report • Patients' medical reports • Death report • ABGs • Ventilatory lung mechanics • Hemodynamics	-Senior staff experience	
L. Council patients and families about • Symptoms of critical illness • Methods of management • How they synchronize with ventilator	-Perform under supervision of senior staff	

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
M. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	-Observation & supervision -Didactic	-Objective structured clinical examination -Patient survey
N. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		- 360o global rating
O. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		-Objective structured clinical examination -360o global rating

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
P. Work effectively in relevant health care delivery settings and systems including good administrative and time management.	-Observation -Senior staff experience	-360o global rating
Q. Practice cost-effective health care and resource allocation that does not compromise quality of care.		-Check list evaluation of live or recorded performance
R. Assist patients in dealing with system complexities.		-360o global rating - Patient survey

Unit (Module) 3: Pain management

A-Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
A. Describe the etiology, clinical picture, diagnosis and management of the following diseases and clinical conditions: Common pain condition • Headache • Cervical and Lumbar Pain • Abdominal Pain • Arthritis • Neuropathic Pain • Myofascial Pain • Fibromyalgia • Cancer pain • Pediatric Pain • Pregnancy and Pain • Geriatrics and Chronic Pain • Gender and Ethnic Issues in Chronic Pain Comorbid Conditions • Psychological Comorbidity • Obesity and Chronic Pain	-Didactic (lectures, seminars, tutorial) - journal club, -Critically appraised topic, Educational prescription -Present a case (true or simulated) in a grand round	-Log book& Portfolio -Oral exam & Written exam
B. Mention the principles of • Physiology of pain • Molecular Mechanisms of Nociception • Different chronic pain syndromes • Pharmacology of drugs used to treat different types of pain		
C. State update and evidence based Knowledge in pain management.		

D. Memorize the facts and principles of the relevant basic and clinically supportive sciences related to pain management.		
E. Mention the basic ethical and medicolegal principles that should be applied in practice and are relevant to pain management.		
F. Mention the basics and standards of quality assurance to ensure good clinical practice in the field of pain management.		
G. Mention the ethical and scientific principles of medical research Methodology.		
H. State the impact of common health problems in the field of pain management on the society and how good clinical practice improve these problems.		

A- Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases related to pain management.	-Clinical rounds -Senior staff experience	-Procedure & case presentation -log book & portfolio
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to pain management.		
C. Design and /or present a case or review (through seminars/journal clubs.) in one or more of common clinical problems relevant to the field of pain management.		
D-Formulate management plans and alternative decisions in different situations in the field of the pain management.		

B- Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Obtain proper history and examine patients in caring and respectful behaviors.	-Didactic (lectures, seminars, tutorial) -Outpatient -Inpatient -Case presentation -Direct observation	- Log book - Objective structure clinical examination (OSCE) - One MCQ examination at the second half of the second year
B. Order the following non invasive and invasive diagnostic procedures Appropriate laboratory investigations related to conditions mentioned above	-Clinical round with senior staff -Observation -Post graduate teaching -Hand on workshops	-Procedure presentation - Log book - Chick list
C. Interpret the following non invasive and invasive diagnostic procedures Appropriate procedures related to conditions mentioned above	-Clinical round with senior staff -Observation - Post graduate teaching -Hand on workshops	
D. Perform the following non invasive and invasive diagnostic and therapeutic procedures Appropriate procedures related to conditions mentioned above	-Clinical round with senior staff -Observation Post graduate	

	teaching -Hand on workshops	
E. Prescribe the following non invasive and invasive therapeutic procedures : Appropriate procedures related to conditions mentioned above	-Clinical round with senior staff -Perform under supervision of senior staff	- Procedure presentation - Log book - Chick list
F. Carry out patient management plans for common conditions related to pain management.	- Clinical round with senior staff - Perform under supervision of senior staff	
G. Use information technology to support patient care decisions and patient education in common clinical situations related to pain management.		
H. Provide health care services aimed at preventing health problems related to pain management.		
I. Provide patient-focused care in common conditions related to pain management, while working with health care professionals, including those from other disciplines like: • Conditions mentioned in A.A		
J. Write competently all forms of patient charts and sheets including reports evaluating these charts and sheets.(Write a consultation note, Inform patients of a diagnosis and therapeutic plan, completing and maintaining medical records)		

C- General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology (share in audit and risk management activities and use logbook).	-Case log -Observation and supervision -Written & oral communication	--Log book & portfolio
B. Appraises evidence from scientific studies (journal club)	- Case log - Observation and supervision - Written & oral communication - Journal clubs - Discussions in seminars and clinical rounds	--Log book & portfolio
C. Conduct epidemiological Studies and surveys.		
D. Perform data management including data entry and analysis using information technology to manage information, access on-line medical information; and support their own education		
E. Facilitate learning of junior students and other health care professionals including their evaluation and assessment.	-Clinical rounds -Senior staff experience	

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain therapeutic and ethically sound relationship with patients.	-Observation & supervision -Didactic	Simulation Record review (report)
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team or other professional group.		
J. Present a case in • Common problems of chronic pain management.		
K. Write a report • Patients' medical reports	-Senior staff experience	
L. Council patients and families about • Medical and psychological support of patients with chronic pain	-Perform under supervision of senior staff	

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
M. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	-Observation & supervision -Didactic	-Objective structured clinical examination -Patient survey
N. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		- 360o global rating
O. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		-Objective structured clinical examination -360o global rating

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
P. Work effectively in relevant health care delivery settings and systems including good administrative and time management.	-Observation -Senior staff experience	-360o global rating
Q. Practice cost-effective health care and resource allocation that does not compromise quality of care.		-Check list evaluation of live or recorded performance
R. Assist patients in dealing with system complexities.		-360o global rating - Patient survey

Course contents (topic s/modules/rotation
Course Matrix

Time Schedule: Second Part

Topic	Covered ILOs			
	Knowledge A	Intellectual B	Practical skills C	General Skills D
Unit 1 Anesthesia				
Ischemic heart diseases	A,C-H	A-D	A-J	A-R
hypertension	A,C-H	A-D	A-J	A-R
heart failure	A,C-H	A-D	A-J	A-R
valvular heart diseases.	A,C-H	A-D	A-J	A-R
congenital heart diseases.	A,C-H	A-D	A-J	A-R
restrictive lung diseases.	A,C-H	A-D	A-J	A-R
obstructive lung diseases.	A,C-H	A-D	A-J	A-R
acute hepatitis	A,C-H	A-D	A-J	A-R
chronic hepatitis	A,C-H	A-D	A-J	A-R
liver cirrhosis	A,C-H	A-D	A-J	A-R
renal impairment	A,C-H	A-D	A-J	A-R
acute renal failure	A,C-H	A-D	A-J	A-R
chronic renal failure	A,C-H	A-D	A-J	A-R
diabetes mellitus	A,C-H	A-D	A-J	A-R
pheochromocytoma	A,C-H	A-D	A-J	A-R
adrenal disorders	A,C-H	A-D	A-J	A-R
thyroid disorders	A,C-H	A-D	A-J	A-R
parathyroid disorders	A,C-H	A-D	A-J	A-R
pituitary disorders	A,C-H	A-D	A-J	A-R
Neuromuscular diseases	A,C-H	A-D	A-J	A-R
with Neuropsychiatric Disease	A,C-H	A-D	A-J	A-R
Anemia or Coagulation	A,C-H	A-D	A-J	A-R

Disorders				
Malnutrition	A,C-H	A-D	A-J	A-R
Evaluation of Children	A,C-H	A-D	A-J	A-R
Evaluation of the Geriatric Patient	A,C-H	A-D	A-J	A-R
Evaluation of the Pregnant Patient	A,C-H	A-D	A-J	A-R
Airway management	B-H	A-D	A-J	A-R
Monitoring of various body function	B-H	A-D	A-J	A-R
Cardiopulmonary resuscitation	B-H	A-D	A-J	A-R
Theories of mechanism of action of general and local anesthesia	B-H	A-D	A-J	A-R
Principles of preoperative patient preparation.	B-H	A-D	A-J	A-R
Postoperative patient care and acute pain management.	B-H	A-D	A-J	A-R
Cardiopulmonary resuscitation	B-H	A-D	A-J	A-R
Neuroanesthesia	B-H	A-D	A-J	A-R
Cardiac Anesthesia	B-H	A-D	A-J	A-R
Anesthesia for Surgical Treatment of Congenital Heart Disease	B-H	A-D	A-J	A-R
Thoracic Anesthesia	B-H	A-D	A-J	A-R
Anesthesia for Major Vascular Surgery	B-H	A-D	A-J	A-R
Anesthesia for Gastrointestinal Surgery	B-H	A-D	A-J	A-R
Anesthesia for Kidney, Pancreas, or Other Organ Transplantation	B-H	A-D	A-J	A-R

Endocrine Surgery and Intraoperative Management of Endocrine Conditions	B-H	A-D	A-J	A-R
Anesthetic Considerations for Genitourinary and Renal Surgery	B-H	A-D	A-J	A-R
Anesthesia for Obstetric Care and Gynecologic Surgery	B-H	A-D	A-J	A-R
Anesthesia for Newborn Surgical Emergencies	B-H	A-D	A-J	A-R
Anesthesia for Children	B-H	A-D	A-J	A-R
Anesthesia for Orthopedic Surgery	B-H	A-D	A-J	A-R
Anesthesia for Ophthalmic Surgery	B-H	A-D	A-J	A-R
Anesthesia for Otorhinolaryngolic (Ear, Nose, and Throat) surgery	B-H	A-D	A-J	A-R
Outpatient Anesthesia	B-H	A-D	A-J	A-R
Anesthesia Care for Diagnostic or Therapeutic	B-H	A-D	A-J	A-R
Procedures Outside of the Operating Room	B-H	A-D	A-J	A-R
Anesthesia for Trauma Patients	B-H	A-D	A-J	A-R
Anesthetic Management of the Burned patients	B-H	A-D	A-J	A-R
Post operative complications	B-H	A-D	A-J	A-R
Unit 2 Intensive care				
Hypovolemic Shock	A,D-H	A-D	F,G,I	A-R
Distributive Shock with special consideration to septic shock	A,C-H	A-D	F,G,I	A-R
Obstructive shock	A,D-H	A-D	F,G,I	A-R

Cardiac Shock	A,D-H	A-D	F,G,I	A-R
Acute Respiratory Failure	A,D-H	A-D	F,G,I	A-R
Acute Respiratory Failure from Specific Disorders with special consideration to ARDS	A,D-H	A-D	F,G,I	A-R
Critical Illness in Patients with Chronic Renal Failure	A,D-H	A-D	F,G,I	A-R
Pancreatitis	A,D-H	A-D	F,G,I	A-R
Bowel Obstruction	A,D-H	A-D	F,G,I	A-R
Obstruction of the Large Bowel	A,D-H	A-D	F,G,I	A-R
Adynamic (Paralytic) Ileus	A,D-H	A-D	F,G,I	A-R
Diarrhea & Malabsorption	A,D-H	A-D	F,G,I	A-R
Pancreatic Insufficiency	A,D-H	A-D	F,G,I	A-R
Lactase Deficiency	A,D-H	A-D	F,G,I	A-R
Diarrhea	A,D-H	A-D	F,G,I	A-R
Infections and sepsis in the Critically Ill	A,C-H	A-D	F,G,I	A-R
Surgical Infections by Body Site	A,D-H	A-D	F,G,I	A-R
Management of the Elderly Patient in the ICU	A,D-H	A-D	F,G,I	A-R
Atrial Arrhythmias	A,D-H	A-D	F,G,I	A-R
Ventricular Arrhythmias	A,D-H	A-D	F,G,I	A-R
Heart Block	A,D-H	A-D	F,G,I	A-R
Cardiac Problems during Pregnancy	A,C-H	A-D	F,G,I	A-R
Toxic Effects of Cardiac Drugs	A,D-H	A-D	F,G,I	A-R
Aneurysms, Dissections, & Transections of the Great Vessels	A,D-H	A-D	F,G,I	A-R
Postoperative Arrhythmias	A,D-H	A-D	F,G,I	A-R
Bleeding, Coagulopathy, & Blood Product, Utilization	A,D-H	A-D	F,G,I	A-R

Circulatory Arrest, & Ventricular, Assistance	A,D-H	A-D	F,G,I	A-R
Postoperative Low-Output States	A,D-H	A-D	F,G,I	A-R
Status Asthmatics	A,D-H	A-D	F,G,I	A-R
Life-Threatening	A,D-H	A-D	F,G,I	A-R
Hemoptysis	A,D-H	A-D	F,G,I	A-R
Deep Venous Thrombosis	A,D-H	A-D	F-I	A-R
Pulmonary Thromboembolism	A,D-H	A-D	F,G,I	A-R
Anaphylaxis	A,D-H	A-D	F,G,I	A-R
Angioedema	A,D-H	A-D	F,G,I	A-R
Thyroid Storm	A,D-H	A-D	F,G,I	A-R
Myxedema Coma	A,D-H	A-D	F,G,I	A-R
Acute Adrenal Insufficiency	A,D-H	A-D	F,G,I	A-R
Sick Euthyroid Syndrome	A,D-H	A-D	F,G,I	A-R
Diabetes Mellitus, Hyperglycemia.	A,D-H	A-D	F,G,I	A-R
Diabetic Ketoacidosis	A,D-H	A-D	F,G,I	A-R
Hyperglycemic Hyperosmolar	A,D-H	A-D	F,G,I	A-R
Nonketotic Coma	A,D-H	A-D	F,G,I	A-R
Management of the Acutely Ill Patient with Hyperglycemia or Diabetes Mellitus	A,D-H	A-D	F,G,I	A-R
Hyperglycemia	A,D-H	A-D	F,G,I	A-R
Hypoglycemia	A,D-H	A-D	F,G,I	A-R
Other Complications of Diabetes Mellitus	A,D-H	A-D	F,G,I	A-R
Vascular Emergencies in the ICU	A,D-H	A-D	F,G,I	A-R
Encephalopathy & Coma	A,D-H	A-D	F,G,I	A-R
Seizures	A,D-H	A-D	F,G,I	A-R

Neuromuscular Disorders	A,D-H	A-D	F,G,I	A-R
Cerebrovascular Diseases	A,D-H	A-D	F,G,I	A-R
Head Injuries	A,C-H	A-D	F,G,I	A-R
Subarachnoid Hemorrhage	A,D-H	A-D	F,G,I	A-R
Tumors of the Central Nervous System	A,D-H	A-D	F,G,I	A-R
Cervical Spinal Cord Injuries	A,D-H	A-D	F,G,I	A-R
Acute Abdomen	A,D-H	A-D	F,G,I	A-R
Upper Gastrointestinal Bleeding	A,D-H	A-D	F-I	A-R
Lower Gastrointestinal Bleeding	A,D-H	A-D	F-I	A-R
Acute Hepatic Failure	A,D-H	A-D	F,G,I	A-R
Acute Gastrointestinal Bleeding from Portal - Hypertension	A,D-H	A-D	F,G,I	A-R
Ascites	A,D-H	A-D	F,G,I	A-R
Hepatorenal Syndrome	A,D-H	A-D	F,G,I	A-R
Liver Resection in Patients with Cirrhosis	A,D-H	A-D	F,G,I	A-R
Poisonings & Ingestions	A,D-H	A-D	F,G,I	A-R
Heat Stroke	A,D-H	A-D	F,G,I	A-R
Hypothermia	A,D-H	A-D	F,G,I	A-R
Frostbite	A,D-H	A-D	F,G,I	A-R
Near-Drowning	A,D-H	A-D	F,G,I	A-R
Envenomation	A,D-H	A-D	F,G,I	A-R
Electric Shock & Lightning Injury	A,D-H	A-D	F,G,I	A-R
Radiation Injury	A,D-H	A-D	F,G,I	A-R
Management of Critical Complications of Pregnancy	A,C-H	A-D	F,G,I	A-R
Disorders Fluids, Electrolytes, & Acid-Base	A,D-H	A-D	F,G,I	A-R
Malnutrition in the Critically	A,D-H	A-D	F,G,I	A-R

Ill Patient				
Open heart surgery.	A,D-H	A-D	F,G,I	A-R
Neurosurgery.	A,D-H	A-D	F,G,I	A-R
Vascular surgery.	A,D-H	A-D	F,G,I	A-R
Surgery for transplanted organs.	A,D-H	A-D	F,G,I	A-R
Major surgical conditions	A,D-H	A-D	F,G,I	A-R
Basic and advanced life support	B,D-H	A-D	F,G,I	A-R
Indications of admission to ICU	B,D-H	A-D	F,G,I	A-R
Vascular access:	B,D-H	A-D	F,G,I	A-R
Airway management	B,D-H	A-D	D-G,I	A-R
Nasal and oral airways	B,D-H	A-D	D-G,I	A-R
Laryngeal mask airway	B,D-H	A-D	D-G,I	A-R
Endotraheal tube	B,D-H	A-D	D-G,I	A-R
Suction	B,D-H	A-D	D-G,I	A-R
Haemodynamic monitoring	B,D-H	A-D	C,FG,I	A-R
Arterial blood pressure	B,D-H	A-D	C,FG,I	A-R
Pulmonary artery pressure	B,D-H	A-D	C,FG,I	A-R
Central venous pressure and pulmonary artery wedge pressure.	B,D-H	A-D	C,D,F,G,I	A-R
Arrhythmias	B,D-H	A-D	F,G,I	A-R
Hemodynamic drug infusion	B,D-H	A-D	E-G,I	A-R
Invasive& noninvasive assessment of arterial blood gases	B,D-H	A-D	C,D,F,G,I	A-R
Acid base status	B,D-H	A-D	F,G,I	A-R
Hypoxemia and hypercapnia	B,D-H	A-D	F,G,I	A-R
Pulse oximetry	B,D-H	A-D	F,G,I	A-R
The most common electrolyte disorders	B,D-H	A-D	F,G,I	A-R
Hypokalemia	B,D-H	A-D	F,G,I	A-R

Hypomagnesemia	B,D-H	A-D	F,G,I	A-R
Hyponatremia	B,D-H	A-D	F,G,I	A-R
Hypocalcaemia.	B,D-H	A-D	F,G,I	A-R
Infection in ICU	B,D-H	A-D	F,G,I	A-R
Ventilator associated pneumonia	B,D-H	A-D	F,G,H,I	A-R
Sepsis syndrome.	B,C-H	A-D	F,G,I	A-R
Empirical antibiotic therapy	B,D-H	A-D	F,G,I	A-R
Mechanical ventilation	B,D-H	A-D	F,G,I	A-R
Objectives of mechanical ventilation	B,D-H	A-D	F,G,I	A-R
Indications of mechanical ventilation	B,D-H	A-D	E-G,I	A-R
Modes and settings of mechanical ventilation	B,D-H	A-D	D-G,I	A-R
Weaning from mechanical ventilation	B,D-H	A-D	D-G,I	A-R
Non invasive positive pressure ventilation	B,D-H	A-D	E-G,I	A-R
Complications of mechanical ventilation	B,D-H	A-D	F,G,I	A-R
Sedation and muscle relaxants	B,D-H	A-D	F,G,I	A-R
Nutrition	B,D-H	A-D	F,G,I	A-R
Enteral tube feeding	B,D-H	A-D	F,G,I	A-R
Total parenteral nutrition	B,D-H	A-D	F,G,I	A-R
ARDS	B,C-H	A-D	A-F,G,I,J	A-R
Status asthmatics	B,D-H	A-D	A-F,G,I,J	A-R
Acute pulmonary embolism	B,D-H	A-D	A-J	A-R
IPF	B,D-H	A-D	A-F,G,J,J	A-R
pneumonia	B,D-H	A-D	A-J	A-R
Unit 3 Pain management				
Headache	A,C-H	A-D	A-J	A-R
Cervical and Lumbar Pain	A,C-H	A-D	A-J	A-R

Abdominal Pain	A,C-H	A-D	A-J	A-R
Arthritis	A,C-H	A-D	A-J	A-R
Neuropathic Pain	A,C-H	A-D	A-J	A-R
Myofascial Pain	A,C-H	A-D	A-J	A-R
Fibromyalgia	A,C-H	A-D	A-J	A-R
Cancer pain	A,C-H	A-D	A-J	A-R
Pediatric Pain	A,C-H	A-D	A-J	A-R
Pregnancy and Pain	A,C-H	A-D	A-J	A-R
Geriatrics and Chronic Pain	A,C-H	A-D	A-J	A-R
Gender and Ethnic Issues in Chronic Pain	A,C-H	A-D	A-J	A-R
Psychological Comorbidity	A,C-H	A-D	A-J	A-R
Obesity and Chronic Pain	A,C-H	A-D	A-J	A-R
Physiology of pain	B-H	A-D	-	A-R
Molecular Mechanisms of Nociception	B-H	A-D	-	A-R
Different chronic pain syndromes	B-H	A-D	-	A-R
Pharmacology of drugs used to treat different types of pain	B-H	A-D	-	A-R

5. Course methods of teaching/learning:

1. Didactic (lectures, seminars, tutorial)
2. Clinical rounds
3. Clinical rotations
4. Service teaching
5. Post graduate teaching
6. Hand on workshops
7. Perform under supervision of senior staff
8. Simulations
9. Senior staff experience
10. Case presentation

11. Case log
12. Outpatient
13. Inpatient
14. Direct observation
15. journal club,
16. Critically appraised topic
17. Educational prescription
18. Observation and supervision
19. Written & oral communications

6. Course methods of teaching/learning: for students with poor achievements

1. Extra Didactic (lectures, seminars, tutorial) according to their needs
2. Extra training according to their needs

7. Course assessment methods:

i. Assessment tools:

1. Oral examination
2. Clinical examination
3. Written examination
4. One MCQ examination
5. Objective structure clinical examination (OSCE)
6. Procedure & case Log b& Portfolios
7. Simulation
8. Record review (report)
9. Patient survey
10. 360o global rating
11. Check list evaluation of live or recorded performance

ii. Time schedule: At the end of the second part

iii. Marks: 1200 mark

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

- Morgan G.E, Mikhail M and Murry M., (2016) Clinical anesthesiology, 6th edition, McGraw-Hill Companies, UK, and USA
- Paul L Marino: The ICU Book (5th Edition ,2017)

iii. Recommended book

- Miller R.D., Cucchiara RF et al, (2010): Anesthesia, 5th edition, vol(1).
- Mechanical Ventilation - MacIntyre N R Branson R D – 2008
- Frederic S. Bongard: Current Diagnosis & Treatment in critical care (3rd edition, 2008)
- Dawn A. Marcus: Chronic pain: a primary care guide to practical management (2nd edition, 2014

iv. Periodicals, Web sites, … etc

➢ **Periodicals**

- American Journal of Respiratory & Critical Care Medicine
- Chest
- BMJ
- British journal of anesthesia
- Anesthesia and analgesia
- Anesthesiology
- Canadian journal of anesthesia

V. others : None

9. Signatures

Course Coordinator: ……	**Head of the Department:** ……
Date: ……	**Date:** ……

ANNEX 2
Program Academic Reference Standards (ARS)

1- Graduate attributes for master degree in Anesthesia and post operative intensive care

***The Graduate (after residence training and master degree years of study) must*:**

1- Have the capability to be a scholar, understanding and applying basics, methods and tools of scientific research and clinical audit *in* Anesthesia and post operative intensive care.

2- Appraise and utilise scientific knowledge to continuously update and improve clinical practice in related speciality.

3- Acquire sufficient medical knowledge in the basic biomedical, clinical, behavioural and clinical sciences, medical ethics and medical jurisprudence and apply such knowledge in patient care in the field of Anesthesia and post operative intensive care.

4- Provide patient care that is appropriate, effective and compassionate for dealing with common health problems and health promotion using evidence-based and updated information.

5- Identify and share to solve health problems in his speciality.

6- Acquire all competencies –including the use of recent technologies- that enable him to provide safe, scientific, and ethical and evidence based clinical care including update use of new technology in Anesthesia and post operative intensive care

7- Demonstrate interpersonal and communication skills that ensure effective information exchange with individual patients and their families and teamwork with other health professions, the scientific community and the public.

8- Function as supervisor, and trainer in relation to colleagues, medical students and other health professions.
9- Acquire decision making capabilities in different situations related to Anesthesia and post operative intensive care
10- Show responsiveness to the larger context of the health care system, including e.g. the organisation of health care, partnership with health care providers and managers, practice of cost-effective health care, health economics, and resource allocations.
11- Be aware of public health and health policy issues and share in system-based improvement of health care.
12- Show appropriate attitudes and professionalism.
13- Demonstrate skills of lifelong learning and maintenance of competence and ability for continuous medical education and learning in subsequent stages in Anesthesia and post operative intensive care or one of its subspecialties.

2- Competency based Standards for clinical master degree graduates

2.1- Knowledge and understanding

By the end of the program, the graduate should demonstrate satisfactory knowledge and understanding of

2-1-A- Established basic, biomedical, clinical, epidemiological and behavioral sciences related conditions, problem and topics.

2-1-B- The relation between good clinical care of common health problems in the speciality and the welfare of society.

2-1-C- Up to date and recent developments in common problems related to Anesthesia and post operative intensive care .

2-1-D- Ethical and medicolegal principles relevant to practice in Anesthesia and post operative intensive care.

2-1-E -Quality assurance principles related to the good medical practice in Anesthesia and post operative intensive care .

2-1-F- Ethical and scientific basics of medical research.

2.2- Intellectual skills:

By the end of the program, the graduate should be able to demonstrate the following:

2-2-A- Correlation of different relevant sciences in the problem solving and management of common diseases of Anesthesia and post operative intensive care.

2-2-B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common clinical situations related to Anesthesia and post operative intensive care .

2.2- C- Demonstrating systematic approach in studying clinical problems relevant to Anesthesia and post operative intensive care.

2-2-D- Making alternative decisions in different situations in Anesthesia and post operative intensive care.

2.3- Clinical skills

By the end of the program, the graduate should be able to

2-3-A - Provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.

2-3-B- Demonstrate patient care skills relevant to Anesthesia and post operative intensive care for patients with common diseases and problems.

2-3- C- Write and evaluate reports for situations related to the field of Anesthesia and post operative intensive care.

2.4- General skills

By the end of the program, the graduate should be able to

- ***Competency-based outcomes for Practice-based Learning and Improvement***

2-4-A- Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence,, improvements in patient care and risk management.

2-4-B- Use all information sources and technology to improve his practice.

2-4-C- Demonstrate skills of teaching and evaluating others.

- ***Competency-based objectives for Interpersonal and Communication Skills***

2-4-D- Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and other health professionals.

- ***Competency-based objectives for Professionalism***

2-4-E- Demonstrate professionalism behaviors, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

- ***Competency-based objectives for Systems-based Practice***

2-4-F- Demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively use system resources to provide care that is of optimal value.

2-4-g- Demonstrate skills of effective time management.

2-4-H- Demonstrate skills of self and continuous learning.

Annex 3, Methods of teaching/learning

Annex 3, Methods of teaching/learning

	Patient care	**Medical knowledge**	**Practice-based learning/ Improvement**	**Interpersonal and communication skills**	**Professionalism**	**Systems-based practice**
Didactic (lectures, seminars, tutorial)	X	X		X	X	X
journal club,	X	X	X			
Educational prescription	X	X	X	X	X	X
Present a case (true or simulated) in a grand round	X	X	X	X	X	
Observation and supervision	X		X	X	X	X
conferences		X	X	X		X
Written assignments	X	X	X	X	X	X
Oral assignments	X	X	X	X	X	X

Teaching methods for knowledge

- Didactic (lectures, seminars, tutorial)
- journal club
- Critically appraised topic
- Educational prescription (a structured technique for following up on clinical questions that arise during rounds and other venues).
- Present a case (true or simulated) in a grand round
- Others

Teaching methods for patient care

- Observation and supervision /Completed tasks procedure/case logs
- On-the-job" training without structured teaching is not sufficient for this skill (checklists).
- Simulation is increasingly used as an effective method for skill/ teamwork training.

Teaching methods for other skills

- Written communication (e.g., orders, progress note, transfer note, discharge summary, operative reports, and diagnostic reports).

- Oral communication (e.g., presentations, transfer of care, interactions with patients, families, colleagues, members of the health care team) and/or non verbal skills (e.g., listening, team skills)

- Professionalism, including medical ethics, may be included as a theme throughout the program curriculum

that includes both didactic and experiential components (e.g., may be integrated into already existing small group discussions of vignettes or case studies and role plays, computer-based modules) and may be modeled by the faculty in clinical practice and discussed with the resident as issues arise during their clinical practice.

Annex 4, Assessment methods

Annex 4, ILOs evaluation methods for Master Degree students.

Method	Practical skills	K	Intellectual	General skills			
	Patient care	K	I	Practice-based learning/ Improvement	Interpersonal and communication skills	Professionalism	Systems-based practice
Record review	X	X	X		X	X	X
Checklist	X				X		
Global rating	X	X	X	X	X	X	X
Simulations	X	X	X	X	X	X	
Portfolios	X	X	X	X	X		
Standardized oral examination	X	X	X	X	X		X
Written examination	X	X	X	X			X
Procedure/ case log	X	X					
OSCE	X	X	X	X	X	X	X

Annex 4, Glossary of Master Degree doctors assessment methods

- Record Review – Abstraction of information from patient records, such as medications or tests ordered and comparison of findings against accepted patient care standards.

- Chart Stimulated Recall – Uses the MSc doctor's patient records in an oral examination to assess clinical decision-making.

- Mini clinical evaluation: Evaluation of Live/Recorded Performance (single event) – A single resident interaction with a patient is evaluated using a checklist. The encounter may be videotaped for later evaluation.

- Standardized Patients (SP) – Simulated patients are trained to respond in a manner similar to real patients. The standardized patient can be trained to rate MSc doctor's performance on checklists and provide feedback for history taking, physical examination, and communication skills. Physicians may also rate the MSc doctor's performance.

- Objective Structured Clinical Examination (OSCE) – A series of stations with standardized tasks for the MSc doctors to perform. Standardized patients and other assessment methods often are combined in an OSCE. An observer or the standardized patient may evaluate the MSc doctors.

- Procedure or Case Logs – MSc doctors prepare summaries of clinical experiences including clinical data. Logs are useful to document educational experiences and deficiencies.

- PSQs – Patients fill out Patient Survey questionnaires (PSQs) evaluating the quality of care provided by a MSc doctors.

- Case /problems – assess use of knowledge in diagnosing or treating patients or evaluate procedural skills.
- Models: are simulations using mannequins or various anatomic structures to assess procedural skills and interpret clinical findings. Both are useful to assess practice performance and provide constructive feedback.
- 360 Global Rating Evaluations – MSc doctors, faculty, nurses, clerks, and other clinical staff evaluate MSc doctors from different perspectives using similar rating forms.
- Portfolios – A portfolio is a set of project reports that are prepared by the MSc doctors to document projects completed during the MSc study years. For each type of project standards of performance are set. Example projects are summarizing the research literature for selecting a treatment option, implementing a quality improvement program, revising a medical student clerkship elective, and creating a computer program to track patient care and outcomes.
- Examination MCQ – A standardized examination using multiple-choice questions (MCQ). The in-training examination and written board examinations are examples.
- Examination Oral – Uses structured realistic cases and patient case protocols in an oral examination to assess clinical decision-making.

- Procedure or Case Logs – MSc doctors prepare summaries of clinical experiences including clinical data. Logs are useful to document educational experiences and deficiencies.
- PSQs – Patients fill out Patient Survey questionnaires (PSQs) evaluating the quality of care provided by MSc doctors.

Annex 5, Program evaluation tools

By whom	Method	sample
Quality Assurance Unit	Reports Field visits	#
External Evaluator (s):According to department council External Examiner (s): According to department council	Reports Field visits	#
Stakeholders	Reports Field visits questionnaires	#
Senior students	Questionnaires	#
Alumni	Questionnaires	#

Annex 6, Program Correlations:

مصفوفة توافق المعايير القومية القياسية العامة لبرامج الماجستير مع المعايير الأكاديمية المعتمدة من كلية الطب □ جامعة أسيوط لدرجة الماجستير في التخدير و العناية المركزة

I- General Academic Reference Standards (GARS) versus Program ARS

1- Graduate attributes

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
1- Have the capability to be a scholar, understanding and applying basics, methods and tools of scientific research and clinical audit in Anesthesia and post operative intensive care.	1- إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
2- Appraise and utilise scientific knowledge to continuously update and improve clinical practice in Anesthesia and post operative intensive care.	2-تطبيق المنهج التحليلي واستخدامه في مجال التخصص
3- Acquire sufficient medical knowledge in the basic biomedical, clinical, behavioural and clinical sciences, medical ethics and medical jurisprudence and apply such knowledge in patient care in Anesthesia and post operative intensive care.	3-تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
4- Provide patient care that is appropriate, effective and compassionate for dealing with common health problems and health promotion using evidence-based and update information.	4-إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
5- Identify and share to solve health problems in Anesthesia and post operative intensive care.	5-تحديد المشكلات المهنية و إيجاد حلولا لها
6- Acquire all competencies that enable him to provide safe, scientific, ethical and evidence based clinical care including update use of new technology in Anesthesia and post operative intensive care.	6-إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجيةالمناسبة بما يخدم ممارسته المهنية

7- Demonstrate interpersonal and communication skills that ensure effective information exchange with individual patients and their families and teamwork with other health professions, the scientific community and the public. 8- Function as supervisor, and trainer in relation to colleagues, medical students and other health professions.	7–التواصل بفاعلية و القدرة على قيادة فرق العمل
9- Acquire decision making capabilities in different situations related to Anesthesia and post operative intensive care.	8–اتخاذ القرار في سياقات مهنية مختلفة
10- Show responsiveness to the larger context of the health care system, including e.g. the organisation of health care, partnership with health care providers and managers, practice of cost-effective health care, health economics, and resource allocations.	9– توظيف الموارد المتاحة بما يحقق أعلي استفادة و الحفاظ عليها
11- Be aware of public health and health policy issues and share in system-based improvement of health care.	10–إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
12- Show appropriate attitudes and professionalism.	11–التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
13- Demonstrate skills of lifelong learning and maintenance of competence and ability for continuous medical education and learning in subsequent stages in Anesthesia and post operative intensive care. or one of its subspecialties.	12–تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر

2. Academic standard

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
2.1.A -Established basic, biomedical, clinical, epidemiological and behavioral sciences related conditions, problems and topics.	2-1-أ-النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة.
2.1.B- The relation between good clinical care of common health problems in Anesthesia and post operative intensive care. and the welfare of society.	2-1-ب-التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة.
2.1. C- Up to date and recent developments in common problems related to Anesthesia and post operative intensive care...	2-1-ج-التطورات العلمية في مجال التخصص.
2.1. D- Ethical and medicolegal principles relevant to practice in the Anesthesia and post operative intensive care..	2-1-د-المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص.
2.1. E-Quality assurance principles related to the good medical practice in Anesthesia and post operative intensive care..	2-1-هـ- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
2.1. F- Ethical and scientific basics of medical research.	2-1-و- أساسيات وأخلاقيات البحث العلمي
2.2. A-Correlation of different relevant sciences in the problem solving and management of common diseases of Anesthesia and post operative intensive care.. 2.2. B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common clinical situations related to Anesthesia and post operative intensive care..	2-2-أ- تحليل و تقييم المعلومات في مجال التخصص والقياس عليها لحل المشاكل

2.2. B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common clinical situations related to Anesthesia and post operative intensive care..	2-2-ب- حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
2.2. A-Correlation of different relevant sciences in the problem solving and management of common diseases of Anesthesia and post operative intensive care..	2-2-ج- الربط بين المعارف المختلفة لحل المشاكل المهنية
2.2. C- Demonstrating systematic approach in studying clinical problems relevant to the Anesthesia and post operative intensive care.	2-2-د- إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية
2.4.A-Demonstrate practice-based learning and Improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management	2-2هـ- تقييم المخاطر في الممارسات المهنية في مجال التخصص
2.4.A-Demonstrate practice-based learning and Improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management	2-2-و- التخطيط لتطوير الأداء في مجال التخصص
2.2.D- Making alternative decisions in different situations in the field of Anesthesia and post operative intensive care..	2-2-ز- اتخاذ القرارات المهنية في سياقات مهنية متنوعة
2.3.A- provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. 2.3.B- Demonstrate patient care skills relevant to Anesthesia and	2-3-أ- إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص

post operative intensive care. for patients with common diseases and problems.	
2.3.C- Write and evaluate reports for Situation related to Anesthesia and post operative intensive care..	2-3-ب- كتابة و تقييم التقارير المهنية
2.3.A- provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. 2.3.B- Demonstrate patient care skills relevant to that speciality for patients with common diseases and problems.	2-3-ج- تقييم الطرق و الأدوات القائمة في مجال التخصص
2.4.D- Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and other health professionals.	2-4-أ-التواصل الفعال بأنواعه المختلفة
2.4.A-Demonstrate practice-based learning and improvement skills that investigation and involves evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management 2.4.B- Use all information sources and technology to improve his practice.	2-4-ب- استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية
2.4.A-Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management 2.4.B- Use all information sources and technology to improve his practice.	2-4-ج- التقييم الذاتي وتحديد احتياجاته التعلمية الشخصية

2.4.E-Demonstrate professionalism behavior, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.	
2.4.A-Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, , improvements in patient care and risk management.	2-4-د- استخدام المصادر المختلفة للحصول على المعلومات و المعارف
2.4. C- Demonstrate skills of teaching and evaluating others.	2-4-هـ- وضع قواعد ومؤشرات تقييم أداء الآخرين
2.4. F- Demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively use system resources to provide care that is of optimal value.	2-4-و- العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة
2.4.G- Demonstrate skills of effective time management.	2-4-ز- إدارة الوقت بكفاءة
2.4.H- Demonstrate skills of self and continuous learning.	2-4-ح- التعلم الذاتي و المستمر

Comparison between ARS and ILOS for master degree in Anesthesia and post operative intensive care.

(ARS)	(ILOs)
2-1- Knowledge and understanding	***2-1- Knowledge and understanding***
2-1-A- Established basic, biomedical, clinical, epidemiological and behavioral sciences related conditions, problem and topics.	**2-1-A**- Explain the essential facts and principles of relevant basic sciences including, pharmacology, physiology, anatomy and Physics and clinical measurements related to Anesthesia and post operative intensive care. **2-1-B-** Mention essential facts of clinically supportive sciences including Basics of internal Medicine related to Anesthesia and post operative intensive care. **2-1-C-** Demonstrate sufficient knowledge of etiology, clinical picture, diagnosis, prevention and treatment of the common diseases and situations related to Anesthesia and post operative intensive care.
2-1-B The relation between good clinical care of common health problem in the Anesthesia and post operative intensive care and the welfare of society.	**2-1-H-** State the impact of common health problems in the field of Anesthesia and post operative intensive care on the society and how good clinical practice improve these problems.
2-1-C- Up to date and recent developments in common problems related to the field of Anesthesia and post operative intensive care.	**2-1-C-** Demonstrate sufficient knowledge of etiology, clinical picture, diagnosis, prevention and treatment of the common diseases and situations related to Anesthesia and post operative intensive care. **2-1-D-** Give the recent and update developments in the pathogenesis, diagnosis, prevention and treatment of common diseases related to Anesthesia and post operative intensive care.
2-1-D- Ethical and medicolegal Principles relevant to practice in	**2-1-E-** Mention the basic ethical and medicolegal principles that should be applied in practice and

the Anesthesia and post operative intensive care field	are relevant to the field of Anesthesia and post operative intensive care.
2-1-E-Quality assurance principles related to the good medical practice in the Anesthesia and post operative intensive care field.	**2-1-F-** Mention the basics and standards of quality assurance to ensure good clinical practice in the field of Anesthesia and post operative intensive care.
2-1-F- Ethical and scientific basics of medical research.	**2-1-G-** Mention the ethical and scientific principles of medical research methodology**.**
***2-2- Intellectual skills*:** **2-2-A-**Correlation of different relevant sciences in the problem solving and management of common diseases of the Anesthesia and post operative intensive care.	***2-2- Intellectual skills:*** **2-2-A-** Correlate the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases of the Anesthesia and post operative intensive care.
2-2-B-Problem solving skills based on data analysis and evaluation (even in the absence of some) for common clinical situations related to Anesthesia and post operative intensive care.	**2-2-B-** Demonstrate an investigatory and analytic thinking approach (problem solving) to common clinical situations related to Anesthesia and post operative intensive care..
2-2-C- Demonstrating systematic approach in studding clinical problems relevant to the Anesthesia and post operative intensive care field.	**2-2-C-** Design and /or present a case or review (through seminars/journal clubs.) in one or more of common clinical problems relevant to the Anesthesia and post operative intensive care field.
2-2-D Making alternative decisions in different situations in the field of the Anesthesia and post operative intensive care.	**2-2-D-** Formulate management plans and alternative decisions in different situations in the field of the Anesthesia and post operative intensive care.

continuous (ARS)	continuous (ILOs)
2-3- Clinical skills:	***2/3/1/Practical skills (Patient Care :)***
2-3-A- Provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.	**2-3-1-A-** Obtain proper history and examine patients in caring and respectful behaviors.
	2-3-1-B- Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment for common conditions related to Anesthesia and post operative intensive care.
2-3-B- Demonstrate patient care skills relevant to that Anesthesia and post operative intensive care.for patients with common diseases and problems.	**2-3-1-C-** Carry out patient management plans for common conditions related to Anesthesia and post operative intensive care.
	2-3-1-D- Use information technology to support patient care decisions and patient education in common clinical situations related to Anesthesia and post operative intensive care.
	2-3-1-E- Perform competently non invasive and invasive procedures considered essential for the Anesthesia and post operative intensive care.
	2-3-1-F- Provide health care services aimed at preventing health problems related to Anesthesia and post operative intensive care.
	2-3-1-G- Provide patient-focused care in common conditions related to Anesthesia and post operative intensive care., while working with health care professionals, including those from other disciplines.

2-3-C- Write and evaluate reports for situations related to the field of Anesthesia and post operative intensive care.	**-3-1-H** Write competently all forms of patient charts and sheets including reports evaluating these charts and sheets. (Write a consultation note, Inform patients of a diagnosis and therapeutic plan, completing and maintaining medical records).
2-4- General skills **2-4-A-** Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management	***2/3/2 General skills*** **2-3-2-A-** Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks). **2-3-2-B-** Appraises evidence from scientific studies. **2-3-2-C-** Conduct epidemiological studies and surveys.
2-4-B- Use all information sources and technology to improve his practice.	**2-3-2-C-** Conduct epidemiological studies and surveys. **2-3-2-D**.Perform data management including data entry and analysis and using information technology to manage information, access on-line medical information; and support their own education.
2-4-C- Demonstrate skills of teaching and evaluating others.	**2-3-2-E-** Facilitate learning of students other health care professionals including their evaluation and assessment.
2-4-D- Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and other health professionals.	**2-3-2-F-** Maintain therapeutic and ethically sound relationship with patients. **2-3-2-G-** Elicit information using effective nonverbal, explanatory, questioning, and writing skills. **2-3-2-H-** Provide information using effective nonverbal, explanatory, questioning, and writing skills. **2-3-2-I-** Work effectively with others as a member of a health care team or

	other professional group.
2-4-E-Demonstrate professionalism behaviors, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.	**2-3-2-J-** Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society. **2-3-2-K**- Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices. **2-3-2-L**-Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.
2-4-F- Demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively use system resources to provide care that is of optimal value.	**2-3-2-M**-Work effectively in relevant health care delivery settings and systems including good administrative and time management **2-3-2-N-** Practice cost-effective health care and resource allocation that does not compromise quality of care. **2-3-2-O**- Assist patients in dealing with system complexities.
2-4-G- Demonstrate skills of effective time management	**2-3-2-M**-Work effectively in relevant health care delivery settings and systems including good administrative and time management
2-4-H- Demonstrate skills of self and continuous learning.	**2-3-2-A-** Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks).

III-Program matrix
Knowledge and Understanding

Course	Program covered ILOs							
	2/1/A	2/1/B	2/1/C	2/1/D	2/1/E	2/1/F	2/1/G	2/1/H
Course 1 : Pharmacology	✓							
Course 2 : Physiology	✓							
Course 3 : Anatomy	✓							
course 4 : Physics and clinical measurements	✓							
Course 5 : Internal Medicine	✓	✓	✓	✓	✓	✓	✓	✓
Course 6: Anesthesia and Intensive care	✓	✓	✓	✓	✓	✓	✓	✓

Intellectual

Course	Program covered ILOs			
	2/2/A	2/2/B	2/2/C	2/2/D
Course 1 : Pharmacology	✓	✓		
Course 2 : Physiology	✓	✓		
Course 3 : Anatomy	✓	✓		
course 4 : Physics and clinical measurements	✓	✓		
Course 5 : Internal Medicine	✓	✓	✓	✓
Course 6: Anesthesia and Intensive care	✓	✓	✓	✓

Practical Skills (Patient Care)

Course	Program covered ILOs							
	2/3/1/A	2/3/1/B	2/3/1/C	2/3/1/D	2/3/1/E	2/3/1/F	2/3/1/G	2/3/1/H
Course 1 : Pharmacology								
Course 2 : Physiology								
Course 3 : Anatomy								
course 4 : Physics and clinical measurements								
Course 5 : Internal Medicine	✓	✓	✓	✓	✓	✓	✓	
Course 6: Anesthesia and Intensive care	✓	✓	✓	✓	✓	✓	✓	✓

General Skills

Course	Program covered ILOs							
	2/3/2/A	2/3/2/B	2/3/2/C	2/3/2/D	2/3/2/E	2/3/2/F	2/3/2/G	2/3/2/H
Course 1 : Pharmacology				✓				✓
Course 2 : Physiology				✓				✓
Course 3 : Anatomy				✓				✓
course 4 : Physics and clinical measurements				✓				✓
Course 5 : Internal Medicine	✓	✓	✓	✓	✓	✓	✓	✓
Course 6: Anesthesia and Intensive care	✓	✓	✓	✓	✓	✓	✓	✓

General Skills

Course	Program covered ILOs						
	2/3/2/I	2/3/2/J	2/3/2/K	2/3/2/L	2/3/2/M	2/3/2/N	2/3/2/O
Course 1 : Pharmacology			✓		✓		
Course 2 : Physiology			✓		✓		
Course 3 : Anatomy			✓		✓		
course 4 : Physics and clinical measurements			✓		✓		
Course 5 : Internal Medicine	✓	✓	✓	✓	✓	✓	✓
Course 6: Anesthesia and Intensive care	✓	✓	✓	✓	✓	✓	✓

Annex 7, Additional information:

Department information

-Post operative ICU 8 beds
-General ICU 10 beds
-Trauma ICU 15 beds
-Pediatric ICU 5 beds
- Obstetric ICU 8 beds
- 10 operative rooms

Staff members:

Head of the Department: Prof. Hany Ahmed Ibrahim El Morabaa

Staff members:

1- Prof. Abdel-Hamid Hassan El-Baz
2- Prof. Mahmoud Abdel-Aziz Aly Khalifa
3- Prof. Safia Abdel-Hamid Moustafa
4- Prof.Mohammed Abdel- Moneim Bakr
5- Prof.Samira Mohammed Ahmed Omar
6- Prof.Ahmed Mohammed Ahmed Mohareb
7- Prof.Golnar Mohammed Fathy
8- Prof.Mohammed Gomaa Almaz
9- Prof.Laila Hassan Mohammed
10- Prof.Hassan Lbrahim Mohammed Kotb
11- Prof.Kilani Ali Abdel- Salam
12- Prof.Mohammed Reda Abd- Elaziz Morsi
13- Prof.Fatma Gadel-Rab El- sayed Askar
14- Prof.Nawal Abdel-Aziz Gadel-Rab
15- Prof.Kawser Hefney Mohammed
16- Prof.Sanaa Abd-allah Aly El-Kady
17- Prof. Hamdy Abbas Yousef
18- Prof. Mohammed Mohammed Abdel- Latif
19- Prof. Esam Sharkawy Abd-Allah
20- Prof. Zain El-Abdin Zareh Hassan
21- Prof. Hany Ahmed Lbrahim El-Moraba
22- Assist. Prof Fatma Ahmed Abdel-Al
23- Assist. Prof. Nagwa Mostafa Ibrahim
24- Assist. Prof Sherif Sayed Abdel-Rihim
25- Dr.Allaa Ahmed Ateya
26- Dr.Ayman Ahmed Mamdooh
27- Dr.Gehan Ahmed Sayed

28- Dr.Esam El-Din Mohammed Abd-Alah
29- Dr.Ola Mahmoud Wahba
30- Dr.Khaled Mohamad Morsy
31- Dr.Halla Mohammed Hashem
32- Dr.Sayed Kaoud Abd Elshafy

The operative lists achieved by the whole anesthetic team in our hospital per week include:

1] Plastic surgery (average of 40 cases per week in the lists)
2] Vascular surgery (average of 15-20 cases per week in the lists)
3] Neurosurgery (average of 15-20 cases per week in the lists)
4] Cardiothoracic surgery (average of 6 cases per week in the lists)
5] ENT and Ophthalmic surgery (average of 40 cases per week in the lists)
6] Orthopedic surgery (average of 70 cases per week in the lists)
7] Obstetrics and Gynecological surgery (average of 15-20 cases per week in the lists)
8] Genitourinary tract surgery (average of 50 cases per week in the lists)
9] General Surgery (average of 50 cases per week in the lists)
10] Endoscopic Surgery (average of 15-20 cases per week in the lists)
11) Pediatric general surgery (average of 20-25 cases per week in the lists)
!2) Pediatric open Heart surgery (average of 4 cases per week in the lists)
13) Trauma surgery (average of 50-60 cases per week in the lists)

Department quality control insurance for completing the program

- Evaluation by the Department head and stuff members.
- Regular assessments.
- Log book monitoring.
- Recent equipment and Specialized Units.

(End of the program specifications)