



Quality Assurance Unit



**Tanta University
Faculty of Medicine**

**Department of Anesthesiology, Surgical
intensive care and Pain management**

Course Specifications

**Physics and monitoring For
Anesthesiology, Surgical intensive care
Master degree**

2014

University: Tanta

Faculty: Medicine

Department: Anesthesiology,
Surgical intensive care

A- Administrative Information

1. course title: physics and monitoring for Master of Anesthesiology, Surgical intensive care
2. Department offering the program: Anesthesiology, Surgical intensive care
3. Department responsible for the course: Anesthesiology, Surgical intensive care
4. Course code: ANES 8004
5. Level: First part (Physics and monitoring)
6. No. of Credit / taught hours:
 - credit hours:
 - Theoretical: 3 hours/week X 15 weeks =45hours (3 credit hour)
7. Authorization date of course specification:

B- Professional Information

1 - Overall Course aims

By the end of the course, the student should become fully acquainted with:

- The physical principles related to anaesthesia
- How to deal with different equipments efficiently and safely
- How to use various types of essential clinical measurements.
- Orient and implement the quality improvement and patients' safety.

2 - Intended learning outcomes (ILOs):

A.Knowledge and understanding:

By the end of the course, student should be able to:

- A.1) Recognize physical principles of machines, equipments and tools used in anaesthetic practice
- A.2) Express the safety measures that should be followed during practice.
- A.3) Discuss the principles of different clinical measurements

B-intellectual skills

By the end of the course, student should be able to:

- B.1) analyze of the data obtained from monitors
- B.2) interpretation of values gained from different monitors.
- B.3) Demonstrate detection of any anesthetic system failure

C-Professional &practical skills

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By the end of the course, student should be able to:

- C.1) Estimate the performance of anesthetic machine and different equipments.
- C.2) Evaluate and deal with troubleshooting of anesthetic machine and different apparatus.

D-General transferable (attitude and communication) skills

By the end of the course, student should be able to:

- D.1) Solve Problems
- D.2) Decision making.

3-Course contents

Topics	Theoretical	Practical	total credit hour
Physics, monitoring and clinical measurements.	45		3

Detailed curriculum and log book is annexed

The course topics

	Theoretical
-SI units (basic – derived)	2
-Behaviour of gases & Gas laws	
- Medical gas supply	2
- Gas diffusion & Solubility of gases in liquids	2
- Uptake & Distribution of inhalation anaesthetics	
- Flow,Viscosity,Density ,Surface tension ,Osmosis	2
- Pressure Gauges & Pressure Regulators	2
- Anaesthetic breathing systems	2
-Safety measures in anaesthetic machine	2
-Electricity (principles, electronics ,pace maker, defibrillators , electrocution)	1
-Heat & Temperature	1
-Humidity & Nebulizers	1
-Vaporizers	2
-Ventilators	2
-Respiratory functions	2
-Pollution in OR & Scavenging systems	2
-Fires & Explosions in OR	1
-Measurement of arterial blood pressure	2
-Measurement of CVP	2
-Measurement of pulmonary artery pressure	2
-Measurement of neuro-muscular blockade	2

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-Measurement of humidity	1
-Measurement of CO ₂ ; Capnography	2
-Measurement of O ₂ ; Pulse Oximetry	2
-Measurement of cardiac output	2
-Measurement of temperature	1
-Measurement of osmosis	1
-Flowmeters	1
- Mass spectrometer	1
Total	45

4-Teaching and learning methods

Lectures, seminars, journal clubs, case presentation, assignments, conference participation observation and hands on practice in operating theaters and surgical ICU.

5-Student Assessment

1. MCQ end semester examination at the 15th week of the first semester.
2. Final exam of the 1st part includes :-
 - Written examination.(a1,2,3-b1,2,3)
 - Oral examination. One sitting (2 staff members included in this sitting).(a1,2,3 b1,2,3-c1,2-d1,2)

6- Weighing of assessments

End semester exam	C+ required for attendance of final exam
Final term written examination	60% (45 degree)
Oral examination	40% (30 degree)
Total	100% (75 degree)

7- List of references

Course notes

Lecture notes from Anesthesiology, Surgical intensive care and Pain management

Text book

Essential Books (Text Books)

- Anesthesia by Miller RD 6th edition, Elsevier Churchill Livingstone, New York, 2010.

- Lee's Synopsis of Anesthesia by: Davies NJH, Cashman JN, 13th edition, Elsevier, UK 2005.
- The ICU Paul L. Marino, 2nd edition, Lippincott Williams & Wilkins, Philadelphia 2012.

Recommended Books

- Stoelting's Anesthesia and Co-existing disease, 6th edition, By: Hines RL, Marschall KE, 2008, Elsevier Churchill Livingstone 2012.
- Anesthesiology: Problem-oriented patient management 7th edition, By: Yao FSN, Artusio JF, Lippincott Williams & Wilkins, Philadelphia 2012.

Web Sites

- British Journal of Anaesthesia
- ASA Refresher Course Lectures
- Anesthesiology
- Anesthesia Analgesia
- Egyptian journal of anesthesia
- Journal of Anesthesiology.
- American Society of Anesthesiologists.
- *European Journal of Anesthesiology.*

8-Other resources/ facilities required for teaching and learning to achieve the above ILOs

The department has regular daily lists in different operative theaters.
The department has Surgical ICU unit for postoperative care.
Free Internet access for international data bases is available for all doctorate students through the faculty postgraduate library
The essential text books for this course are available either in department or faculty library

9-we certify that all of the information required to deliver this course is contained in the above specifications and will be implemented

<p>We verify that the above course and the analysis of students and external evaluator opinions are accurate.</p> <p>Course coordinator and head of department name.....signature.....Date.....</p> <p>Head of quality assurance unit: name.....signature.....Date.....</p>
