## Peer Revision

| Reviewers | University | Date of Revision |
|---|---|---|
| - Prof. Dawlat Salem | Cairo | 10/12/2011 |
| - Prof. Ahmad K. Mansur | Mansura | 28/11/2011 |

# Program Specification of MS degree in Anesthesia & Surgical intensive care

**Sohag University** **Faculty of Medicine**

## A. Basic Information

1. Program title: Master Degree in Anesthesia and Surgical Intensive care
2. Program type: Single
3. Faculty: Faculty of Medicine
4. Department: Anesthesia and Surgical Intensive Care
5. Coordinator: Dr. Ayman Muhammed Abdulkareem
6. Coordinator Assistant: Dr. Marwa Ahmed Mahros
7. External evaluator :Prof / Mohamed Almaz
8. Last date of program specifications approval Faculty council No. "317", decree No. "1533" dated 17/12/2018.

## B. Professional Information

1. **Program aims**

The aim of this program is to provide the postgraduate with the medical knowledge and skills essential for the practice of the specialty and necessary to gain further training and practice in the field of Anesthesiology and Surgical Intensive Care through providing:

1. Scientific knowledge essential for the practice of Anesthesiology and intensive care according to the international standards.
2. Skills necessary for proper diagnosis and management of patients in the field of anesthesiology and intensive care including diagnostic, problem solving, decision making and operative skills.
3. Ethical principles related to the practice of this highly sensitive specialty.
4. Active participation in community needs assessment and problems identification.
5. Maintenance of learning abilities necessary for continuous medical education.
6. Maintenance of research interest and abilities.

2. **Attributes of the student:**

1. Mastering the basics of scientific research methodologies.
2. The application of the analytical method and used in the field of Anesthesia.
3. The application of specialized knowledge and integrate it with the relevant knowledge in practice.
4. Be aware of the problems and has modern visions in the field of Anesthesia.
5. Identify problems in the field of Anesthesia and find solutions to them.
6. Mastery of professional skills in this specialty and use of the appropriate recent technologies supporting these skills.
7. Communicate effectively and the ability to lead work teams.
8. Decision-making in his professional contexts.
9. To employ and preserve the available resources to achieve the highest benefit.

# Program Specification of MS degree in Anesthesia & Surgical intensive care

**Sohag University** **Faculty of Medicine**

## A. Basic Information

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2. Program type: Single
3. Faculty: Faculty of Medicine
4. Department: Anesthesia and Surgical Intensive Care
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7. Communicate effectively and the ability to lead work teams.
8. Decision-making in his professional contexts.
9. To employ and preserve the available resources to achieve the highest benefit.

10. Awareness of his role in the community development and preservation of the environment at the lights of both international and regional variables.
11. Reflects the commitment to act with integrity and credibility, responsibility and commitment to rules of the profession.
12. Academic and professional self development and be capable of continuous learning.

## 3. Intended learning outcomes (ILOs):

### a) Knowledge and understanding

By the end of the study of master program in Anesthesia and Surgical intensive care the Graduate should be able to:

a1. Demonstrate the advances in preoperative patient evaluation.
a2. Mention and explain pre anesthetic medications.
a3. Define the patient monitoring during anesthesia and in surgical intensive care.
a4. Mention the advances in breathing system and resuscitation system.
a5. Illustrate the essential features of anesthesia machine.
a6. Demonstrate the knowledge in airway management.
a7. Explain and define types, classification, and mechanism of action of, reversal of block, pharmacodynamics & pharmacokinetics of anesthetic drugs.
a8. Describe the advances of regional Anesthesia.
a9. Define the advances in cardiopulmonary bypass
a10. Define the advances in mechanical ventilation..
a11. Illustrate the impact of anesthesia for patient with variable general diseases.
a12. Know advances in management of anesthetic complication.
a13. Define the types and techniques of anesthesia needed for all diseases .
a14. Mention etiology of electrolyte disturbance (e.g. hyper & hyponatremia, hyper & hypokalemia), how to diagnose it and anesthetic management.
a15. Mention the fluid management, evaluation of intravascular volume, perioperative fluid therapy and blood transfusion.
a16. Define the management of the trauma patient under anesthesia and in surgical intensive care.
a17. Demonstrate knowledge of Cardiopulmonary Resuscitation (CPR).
a18. Define the principles of management of ICU cases.
a19. List the clinical picture and differential diagnosis of intensive care patients
a20. Understand Scientific developments in the field of Anesthesia and Surgical intensive care
a21. Mention The mutual influence between professional practice and its impacts on the environment.
a22. Mention the Ethical and legal principles of professional practice in the field of Anesthesia and Surgical intensive care
a23. Define the principles and fundamentals of quality of professional practice in the field of Anesthesia and Surgical intensive care
a24. Define The basics and ethics of scientific research.

### b) Intellectual skills

By the end of the study of master program in Anesthesia and Surgical intensive care the Graduate should be able to :

b1. Analyze and evaluate of information and data in the field of Anesthesia and Surgical intensive care.

b2. know how to Solve Problems in the specialty of Anesthesia and Surgical intensive care in light of the available data.
b3. Link between knowledge for Professional problems' solving
b4. Conduct a research study and / or write a scientific study on a research problem.
b5. Assess risk in professional practices in the field of Anesthesia and Surgical intensive care
b6. Plan for the development of performance in the field of Anesthesia and Surgical intensive care
b7. Identification of problems in the anesthesia and intensive care unit and how to solve.
b8. Analyze research and issues related to the Anesthesia and Surgical intensive care

**c) Professional and practical skills**

By the end of the study of master program in Anesthesia and Surgical intensive care the Graduate should be able to:

c1. Master the basic and modern professional skills in the area of Anesthesia and Surgical intensive care.
c2. Write and evaluate medical reports.
c3. Evaluate and develop methods and tools existing in the area of Anesthesia and Surgical intensive care.
c4. Use of technological methods to serve the professional practice.
c5. Train junior staff through continuous medical education programs.
c6. Design new methods, and ways of professional practice.

**d) General and transferable skills**

By the end of the study of doctoral program in Anesthesia and Surgical intensive care the Graduate should be able to:

d1. Do the different types of effective communication.
d2. Use information technology to serve the development of professional practice
d3. Teach others and evaluate their performance.
d4. Asses himself and identify of personal learning needs.
d5. Use of different sources for information and knowledge.
d6. Work coherently and successfully as a part of team and team's leadership.
d7. Scientific meetings administration according to the available time.

## 4. Academic standards

External references for standards (Benchmarks)

Sohag faculty of medicine adopted the general national academic reference standard (NARS) provided by the national authority for quality assurance and accreditation of education (NAQAAE) for postgraduates program. This was approved by the faculty council decree NO.7528, in its cession NO.191 Dated: 15/3/2010. The adoption of NARS and the suggested ARS were approved by University council degree No 587, in its cession No.60. Dated 26-12-2011

## 5. Curriculum Structure and Contents

5.a- Program duration: 6 semesters (3 years)
5.b- Program structure
5.b.i- No. of hours per week: 6

| | hours /week | | |
|---|---|---|---|
| Subject | Lectures | Practical / Surgical | Clinical |

| | | | |
|---|---|---|---|
| First Part: | | | |
| Minors :<br>physiology | 1 | 1 | --- |
| pharmacology | 1 | 1 | ---- |
| Anatomy | 1 | 1 | ---- |
| Physics | 1 | 1 | --- |
| Internal medicine | 2 | --- | 2 |
| Second Part: | | | |
| Anesthesia and Surgical Intensive Car. | 6 | 6 | __ |

| code | Item | | No | % |
|---|---|---|---|---|
| b.i | Total credit hours | Compulsory | | |
| | | Elective | | |
| | | Optional | | |
| b.iii | credit hours of basic sciences courses | | | |
| b.iv | credit hours of courses of social sciences and humanities | | | |
| b.v | credit hours of specialized courses: | | | |
| b.vi | credit hours of other course | | | |
| b.vii | Practical/Field Training | | | |
| b.viii | Program Levels (in credit-hours system):<br>Level 1: 1st part<br>Level 2: 2nd Part<br>Level 3: Thesis | | | |

**6. Program courses: 5**

**6.1- Level/Year of Program**

**Semester…1**

**First part**

**a. Compulsory** :

| | | hours /week | | | Program ILOs covered |
|---|---|---|---|---|---|
| Subject | Total No. Of Units | Lectures | Practical / Surgical | Clinical | |
| First Part: | | | | | |
| Minors :<br>Physiology | 2 | 1 | 1 | | a14, a15, a26, b13, b14, c10,d1,d5 |
| Pharmacology | 2 | 1 | 1 | | a2, a7, b15, b16, c11, c12,d1, d5, d11 |
| Anatomy | 2 | 1 | 1 | | a8, a25, a27, a28, b12, c9, d1, d5, d10 |
| Physics | 2 | 1 | 1 | | a4, a9, a10, b6, b11, d1, d5, d9 |

| | | | | | |
|---|---|---|---|---|---|
| Internal medicine | 4 | 2 | | 2 | a11,a14.a19,b9, b10, c7, c8,d1, d5,d8 |
| Biostatistics & Computer and Research Methodology | 2 | 1 | 2 | -- | a17, a18, b4, b8, c3, d2, d4. |
| Second Part | | | | | |
| Majors: Anesthesia and Surgical Intensive Care | 12 | 6 | 6 | | a1,3,5,6,8,9,10,11,12,13, 15,16,17,18,19,20,21,22, 23,24,b1 – b8,c1 – c6 d1 – d7 |

## 7. Program Admission Requirements

**I- General Requirements**.

1. Candidate should have either:
   i. MBBch degree from any Egyptian Faculty of Medicine or
   ii. Equivalent Degree from Medical Schools abroad approved by the ministry of high Education.
2. Candidate should pass the house office training year.
3. Those who are not university hospital residents should pass a training for at least 12 months in one of the known hospitals.
4. Follow postgraduate bylaw Regulatory rules of Sohag Faculty of Medicine approved by the ministerial decree No. (44), dated 6/1/2010.

**II.Specific Requirements:**

A. Candidates graduated from Egyptian Universities should have at least "Good Rank" in their final / cumulative years examination, and grade "Good Rank" in General sugary Course too.
B. Master Degree in Anesthesia and surgical intensive care with at least "Good Rank".
C. Candidate should know how to speak & write English well.
D. Candidate should have computer skills.

## 8. Regulations for Progression and Program Completion

Duration of program is 50 credit hours (≥4 semesters ≥3 years), starting from registration till 2nd part exam; divided to:

**First Part: (15 Credit hours ≥6 months ≥1 semester):**

- Program-related basic & clinical sciences & research Methodology, Ethics & medical reports, Biostatistics and computer.
- At least six months after registration should pass before the student can ask for examination in the 1st part.
- Two sets of exams: 1st in October — 2nd in April.
- At least 50% of the written exam is needed to pass in each course.
- For the student to pass the first part exam, a score of at least 60% (Level D) in each course is needed.
- Those who fail in one course need to re-exam it only for the next time only, and if re-fail, should register for the course from the start.

**Thesis/Essay(6 Credit hours ≥6 months=1 semester):**

- Completion of the 1st part credit hours and passing the exams are pre requisites for documentation of the **Thesis/Essay** subject.

- Should be completed, defended and accepted after passing the 1st part examination, and at least one month before allowing to enter 2nd part final examination.
- Accepting the thesis is enough to pass this part.

**Second Part: (24 Credit hours ≥18 months= 3 semesters):**

- Program related specialized science of Anesthesia and surgical intensive care Courses and ILOs.
- Completion of the 1st part credit hours and passing the exams are pre requisites for documentation of the 2nd part courses.
- After passing at least:
    1. University hospital residents: 36 months residency in the department of Obstetrics & Gynecology.
    2. Residents in other places: Completed 36 months residency; 12 months of them training in the department of Obstetrics & Gynecology.
- The students should pass the 1st part before asking for examination in the 2nd part.
- Fulfillment of the requirements in each course as described in the template and registered in the log book (5 Credit hours; with obtaining ≥75% of its mark ) is a prerequisite for candidates to be assessed and undertake part 1 and part 2 examinations; the credit hours of the logbook are calculated as following:
    - Each Cr. Hr.= 60 working Hrs.
    - Logbook= 5 Cr. Hr. X 60 working Hrs = 300 Working Hrs.
    - Collection of working Hrs. is as following:

| **Activity** | | **Hrs** |
|---|---|---|
| **Grand rounds** | **اجتماع علمى موسع** | **٦** |
| **Training courses** | **دورات تدريبية** | **12/ day** |
| **Conference attendance** | **حضور مؤتمرات علمية**<br>**داخلى**<br>**خارجة** | <br>**١٢/day**<br>**18/day** |
| **Thesis discussion** | **حضور مناقشات رسائل** | **٦** |
| **Workshops** | **حضور ورش عمل** | **١٢/day** |
| **Journal club** | **ندوة الدوريات الحديثة** | **٦** |
| **Seminars** | **لقاء علمى موسع** | **٦** |
| **Morbidity and Mortality conference** | **ندوة تحليل المخاطر المرضية أوالوفاة** | **٦** |
| **Self education program** | **برنامج التعليم الذاتى** | **٦** |

- Two sets of exams: 1st in October - 2nd in April.
- At least 50% of the written exam is needed to pass in each course.
- For the student to pass the 2nd part exam, a score of at least 60% (Level D) in each course is needed.

## 9. Methods of student assessments:

| Method of assessment | weight | The assessed ILOs |
|---|---|---|
| 1-Activities | | - General transferable skills, intellectual skills |
| 2-Written Exams:<br>-Short essay: 40%<br>-structured questions: 25%<br>-MCQs: 20%<br>-Commentary, Problem solving: 15% | 50% | <br>- Knowledge<br>- Knowledge<br>- Knowledge, intellectual skills<br>- Intellectual skills, General transferable skills |
| 3-OSCE/ OSPE | 50% | -Practical skills, intellectual skills, general transferable skills |
| 4-Structured Oral Exams | | - Knowledge, Intellectual skills, General transferable skills |

**Assessment schedule:**

**Part I:**

- Human Anatomy & Embryology: Written Exam (2 hours) + Structured oral Exam+ OSPE
- Medical Physiology: Written Exam (2 hours) + Structured oral Exam+ OSPE
- Clinical Pharmacology: Written Exam (2 hours) + Structured oral Exam+ OSPE
- Physics: Written Exam (3 hours) + Structured oral Exam + OSCE
- Internal Medicine: Written Exam (3 hours) + OSCE + structured oral Exam
- Biostatistics & Computer and Research Methodology: Written Exam (2 hours) + Structured oral Exam+ OSPE

**Part II:**

- Anesthesia and Surgical Intensive Care: Two Written Exams (3 hours for each) + OSCE + Structured oral Exam.

## 10. Evaluation of program

| Evaluator | Tool | Sample |
|---|---|---|
| 1- Senior students | questionnaire | 15 |
| 2- Alumni | questionnaire | 20 |
| 3- Stakeholders ( Employers) | questionnaire | 15 |
| 4-External Evaluator(s) (External Examiner(s)) | report | 5 |
| 5- Other | | |

# Course Specification of Human Anatomy & Embryology for Master Degree in Anaesthesia & Intensive care

**Sohag University** **Faculty of Medicine**

1. Program on which the course is given: Master Degree
2. Major element of program.
3. Department offering the program: Dept. of Anesthesia &Surgical Intensive Care Unit.
4. Department offering the course: Human Anatomy & Embryology department
5. Academic **year / Level: 1st year**
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

## A. Basic Information

Title: Human Anatomy & Embryology for Master Degree in Anesthesia &Surgical Intensive Care
Total Hours:
**Code**: ANA 0501-200

| Module | Lectures | Practical | Tutorial | Total | Credit |
|---|---|---|---|---|---|
| Anatomy | 15 | 30 | ----- | 45 | 2 |

## B. Professional Information

### 1. Overall Aims of Course

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

a. Demonstration of knowledge of application of the principles and knowledge of the medical sciences in the field of Human Anatomy & Embryology
b. Demonstrate an understanding of the principles in the field of Human Anatomy & Embryology and how to practice in anesthesia.
c. Describe the principles that govern taking decision for the suitable type of anesthesia for the patient according Human Anatomy & Embryology.
d. Demonstration of relation between understanding the anatomy and explanation for effect of anesthetic e.g. spinal, epidural, local anesthesia and pain management.
**e.** Describe the threats to anesthetist, which can occur during this practice of medicine if the patient with abnormal anatomical feature.

### 2. Intended Learning Outcomes of Course (ILOs):

According to the intended goals of the faculty

#### a) Knowledge and Understanding:

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

a1. Illustrate anatomy of respiratory pathway; Mouth, nose, pharynx, larynx, trachea, main bronchi, pleura, lungs
a2. Demonstrate anatomy of the heart; Pericardium, chambers of heart, blood supply and nerve supply of the heart, surface marking, radiographic anatomy of heart and great vessels
a3. Demonstrate the vertebral canal and its contents; describe the anatomy of the vertebrae and sacrum, spinal meninges, spinal cord, CSF.

a4. Mention and explain the peripheral nerves; Spinal nerves, cervical plexuses, brachial plexus, thoracic nerves, lumbar plexus, define the formation, branches, surface marking of each plexus.

a5. Demonstrate autonomic system; sympathetic trunk & ganglia and parasympathetic system and cranial nerves;

a6. Illustrate pain pathways and gate theory.

a7. Demonstrate zone of interest; Thoracic inlet, Diaphragm, intercostals spaces, abdominal wall, ante-cubital fossa, great vessel of neck

**b) Intellectual Skills**

By the end of the course, students should he able to:

b1. Correlate between the medical condition of the patient and the surgery that will be operated and think about the anesthetic plan.

b2. Integrate the effect of anesthetic on the patient intra-operatively and postoperatively.

b3. Idenify the anesthetic problem implied if the patient medically diseased.

b4. Interpret the advantages and disadvantages of different types of anesthesia.

**c) Practical and Professional Skills**

By the end of the course, students should be able to;

c1. Define the appropriate anatomy for the patient.

c2. Perform air management, intubation efficiently.

c3. Insertion of IV, arterial line and CVP efficiently.

c4. Perform Regional anesthesia (e.g. Spinal, Epidural, Local intravenous anesthesia, preph nerve blocks).

**d) General and Transferable Skills**

By the end of the course, students should he able to:

d1. Communicate with each others and interact effectively with patients prepared for surgery for proper anatomic evaluation then write a report about the case or discuss with staff members.

d2. Present orally plan for the patient prepared for regional anesthesia, patients with difficult intubation in accordance with the standard scientific guidelines in seminars or group meetings, discuss results, defend his/her ideas with staff members. Students can recognize and accept the limitations in their knowledge and clinical skills.

d3. Manipulate computer programs, do web search, to write an essay about important anatomical point of the patient prepared for surgery.

d4. Work together to perform difficult intubation, art line, CVP& PAWP.

**3. Contents**

| Topic | No. of hours | Lecture | Tutorial/ Practical |
|---|---|---|---|
| Anatomy of respiratory pathway | 6 | 2 | 4 |
| Anatomy of the heart | 6 | 2 | 4 |
| The vertebral canal and its contents | 6 | 2 | 4 |
| The peripheral nerves | 9 | 3 | 6 |
| Autonomic system | 3 | 1 | 2 |
| Pain pathways | 9 | 3 | 6 |
| Zone of interest | 6 | 2 | 4 |
| **Total** | **30** | **15** | **30** |
| **Credit** | **2** | **1** | **1** |

## 4. Teaching and learning methods

1. Lectures.
2. Practical sessions.
3. Operative theater work.
4. Application of anesthetic plan under observation.

## 5. Students Assessment Methods

| Method of assessment | The assessed ILOs |
|---|---|
| 5.1- Observation of attendance and absenteeism. | - General transferable skills, intellectual skills |
| 5.2-Written Exam:<br>-Short essay: 40%<br>-structured questions: 25%<br>-MCQs: 20%<br>-Commentary, Problem solving: 15% | <br>- Knowledge<br>- Knowledge<br>- Knowledge, intellectual skills<br>- Intellectual skills, General transferable skills, |
| 5.3-Structured Oral Exam | - Knowledge, Intellectual skills, General transferable skills |

**Assessment Schedule**

**Assessment 1:** Final written exam. 96 weeks

**Assessment2;** Final Structured Oral Exam 96 weeks

**Assessment 3:** Evaluation of the research & Thesis work 96 weeks

**Weighting of assessment**

| | |
|---|---|
| Final written exam | 50% |
| Final Structured Oral Exam | 50% |
| **Total** | 100% |

## 6. List of References

6.1- Essential Books (Text Books)

- Fitzgerald M.J.T. (2016): 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. Sydney. Toronto.

6.2- Recommended Books

- Stevens A. and Lowe J. S. (2015): Human histology; 5th edition; edited by Elsevier Mosby
- Colored Atlas of anatomy.
- Martini F. H., Timmons M. J. and McKinley M.P. (2015): Human anatomy; 10 edition.
- Tortora G. J. and Nielson M.T. (2016): Principles of human anatomy 14 edition; Edited by John Wiley and Sons ; United states.
- McMinn R.M.H. (2017): Lasts anatomy regional and applied chapter 7; 14 edition, edited by Longman group UK.

## 7. Facilities required for teaching and learning

1. Appropriate teaching aids (photographs, anesthetic drug ampoules or vials, laryngoscope, mask, oral &nasal airway, endotracheal tube, ampu bag, Laryngeal airway, double lumen tube ,canula, different fluid solutions, spinal & epidural needle, monitors, anesthesia machine, ventilators, syringe pump, PCA set).
2. Facilities for field work: Operative List, ICU work.
3. Computers with net connection.
4. Data Show and overhead projectors.

**Course Coordinator:** Dr/ Mohamed Al-Badry

**Head of Department:** Dr / Mohamed Al-Badry

**Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013,Revised:1/12/2018**

# Course Specification of Medical Physiology for Master Degree in Anaesthesia & Intensive care

**Sohag University** **Faculty of Medicine**

1. Program on which the course is given: Master Degree
2. Major element of program.
3. Department offering the program: Dept. of Anesthesia &Surgical Intensive Care.
4. Department offering the course: Medical Physiology department
5. Academic **year / Level: 1st year**
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

## A. Basic Information

Title: Medical Physiology for Master Degree in Anesthesia &Surgical Intensive Care

Total Hours:

**Code**: PHY 0501-200

| module | Lectures | Practical | Tutorial | Total | Credit |
|---|---|---|---|---|---|
| Physiology | 15 | 30 | ----- | 45 | 2 |

## B. Professional Information

### 1. Overall Aims of Course

to prepare an anaesthesia physician oriented with the physiology of C.N.S & circulation especially that concerned with pain & analgesic system. Also the regulation of arterial blood pressure, the different types pf shock and their management. In addition, graduates should have enough knowledge about the control of respiration and acid base balance. They should have adequate information about the nerve conduction & muscle contraction.

### 2. Intended Learning Outcomes of Course (ILOs):

**a) Knowledge and Understanding:**

By the end of this course, students should have adequate knowledge about:

a1. The physiology of pain & analgesic system.

a2. The physiology of important phenomena in the body that concerned with anaesthesia practice as coagulation, pain, control of arterial blood pressure & changes with hemorrhage & shock.

**b) Intellectual skills:**

By the end of the course, the students are expected to be able to:

b1. Assessment of the haemodynamic stability of the patient intraoperatively

b2. Be oriented with the physiology of respiration especially acid base balance, hypoxia & cyanosis.

**c) General & TRANSFERABLE SKILLS:**

By the end of this course the student is expected to:

c1. Communicate with members of physiology department.

c2. Appreciate & apply physiological skills in intraoperative patient.

**3. Contents**

| Topic | No. of hours | Lecture | Practical |
|---|---|---|---|
| 1. the physiology of endocrine & reproduction<br>- pancreas, thyroid, adrenal functions & disorders. | 4 | 2 | 2 |
| the physiology of the autonomic nervous system | 5 | 1 | 4 |
| Blood<br>blood coagulation<br>R.B.Cs, platelets | 5 | 1 | 4 |
| circulation<br>Arterial blood pressure<br>Heart rate<br>Cardiac output<br>Hemorrhage<br>shock<br>Pulmonary circulation & coronary circulation.<br>Oedema | 7 | 3 | 4 |
| Respiration:<br>a. Normal mechanisms of respiration<br>b. O2 & CO2 transport in the blood<br>c. Hypoxia<br>d. Cyanosis<br>e. Control of respiration.<br>f. Acid base balance.<br>g. Dyspnea & asphyxia. | 5 | 3 | 2 |
| C.N.S: Pain & analgesic system<br>a. sleep.<br>b. Neuro- transmitters.<br>c. Spinal cord lesions.<br>d. Cerebral blood flow | 6 | 2 | 4 |
| Digesion:<br>a. swallowing & vomiting. | 3 | 1 | 2 |
| Muscle & nerve: (2 hrs)<br>a. action potential & resting membrane potential.<br>b. nerve conduction & excitability.<br>c. mechanism of muscle contraction. | 4 | 2 | 2 |
| **Total** | **45** | **15** | **30** |
| **Credit hours** | **2** | **1** | **1** |

**4. Teaching and learning methods**

1.Lectures.

2.Practical sessions.

3.Operative theater work.

4.Application of anesthetic plan under observation.

## 5. Students Assessment Methods

| Method of assessment | The assessed ILOs |
|---|---|
| 5.1- Observation of attendance and absenteeism. | - General transferable skills, intellectual skills |
| 5.2-Written Exam:<br>-Short essay: 40%<br>-structured questions: 25%<br>-MCQs: 20%<br>-Commentary, Problem solving: 15% | <br>- Knowledge<br>- Knowledge<br>- Knowledge, intellectual skills<br>- Intellectual skills, General transferable skills, |
| 5.3-Structured Oral Exam | - Knowledge, Intellectual skills, General transferable skills |

**Assessment Schedule**

**Assessment 1:** Final written exam. 96 weeks

**Assessment2;** Final Structured Oral Exam 96 weeks

**Assessment 3:** Evaluation of the research & Thesis work 96 weeks

**Weighting of assessment**

| | |
|---|---|
| Final written exam | 50% |
| Final Structured Oral Exam | 50% |
| **Total** | 100% |

## 6. List of References

Course notes
Department notes, lectures & handouts.
Essential books (textbooks)
Gyton textbook of physiology

## 7. Facilities required for teaching and learning

1. Appropriate teaching aids (photographs, anesthetic drug ampoules or vials, laryngoscope, mask, oral &nasal airway, endotracheal tube, ampu bag, Laryngeal airway, double lumen tube ,canula, different fluid solutions, spinal & epidural needle, monitors, anesthesia machine, ventilators, syringe pump, PCA set).
2. Facilities for field work: Operative List, ICU work.
3. Computers with net connection.
4. Data Show and overhead projectors.

**Course Coordinator:** Dr. Hoda Mostafa

**Head of Department:** Prof. Hoda Moustafa

**Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013,Revised1/12/2018**

# Course Specification Clinical Pharmacology for Master Degree in Anesthesia & Surgical Intensive Care

**Sohag University** **Faculty of Medicine**

1. Program on which the course is given: Master Degree
2. Major element of program.
3. Department offering the program: Dept. of Anesthesia &Surgical Intensive Care unit.
4. Department offering the course: Clinical Pharmacology department
5. Academic **year / Level: 1st year**
6. Date of specification approval: Faculty council No"317", decree No. "1533" dated 17/12/2018

## A. Basic Information

Title: Clinical Pharmacology for Master Degree in Anesthesia &Surgical Intensive Care

Total Hours:

**Code**: PHA 0501-200

| module | Lectures | Practical | Tutorial | Total | Credit |
|---|---|---|---|---|---|
| Pharmacology | 15 | 30 | ----- | 45 | 2 |

## B. Professional Information

### 1. Overall Aims of Course

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

Demonstration of knowledge of application of the principles and knowledge of the medical sciences in the field of pharmacology

Demonstration of knowledge of pharmacokinetics & dynamics

Demonstrate an understanding of the principles and practice of pharmacology.

Describe the principles that govern taking decision for the suitable types of drugs for the patient.

Demonstration of types, mechanism of actions, effect, clinical uses, complication, side effects and drug interaction of drugs.

### 2. Intended Learning Outcomes of Course (ILOs):

By the end of the course, students should he able to:

**a) Knowledge and Understanding:**

a1. Describe principles of pharmacokinetics & dynamics of drugs, mechanism of actions, effect, clinical uses, complication, side effects and drug interaction of drugs.

a2. Demonstrate how to evaluate the suitable type of drugs for the patients and describe the principles of action.

a3. Define the pharmacology dynamics; mechanism of action, Drug receptor interaction, adverse drug reaction, factors modifying drug action.

a4. Explain the pharmacokinetics; the drug absorption, distribution, biotransformation or metabolism, clearance, drug interaction.

a5. Demonstrate the adrenergic pharmacology; synthesis of catecholamines, adrenergic receptors, endogenous catecholamines, classification of

sympathomimitic drugs, action, uses, side effects, drug inhibiting, action, uses, side effects and clinical uses.

a6. Mention and explain the cholinergic pharmacology ; synthesis of acetyle choline , cholinergic receptors, cholinomimitics, cholinesterase inhibitors, action, uses, side effects and clinical uses.

a7. Describe the autacoids; types, physiologic role, effect and its clinical application.

a8. Mention the musle relaxant; classification, mech of action, uses, adverse reaction and advantages of each muscle relaxant.

a9. Illustrate the respiratory pharmacology; drug therapy of asthma, mech of action of bronchodilator, anti tussive, expectorants and ttt of pulmonary edema.

a10. Mention and explain gastrointestinal pharmacology; ttt of peptic ulcer, ttt of gastro esophageal reflux, anti-emetic, drug used for diarrhea and constipation, IB$, hepatic encephalopathy.

a11. Define the blood pharmacology; define mech of action, side effects and clinical uses of anticoagulant, antiplatelets, fibrinolytic drugs, drug used for bleeding disorders, intravenous fluid therapy, drug therapy of hyperlipidemia.

a12. Illustrate renal pharmacology; mech of action side effects and clinical uses of diuretics.

a13. Describe the endocrine pharmacology; hormones secreted by the islets of langerhans, ttt of D.M., metabolic effect of insulin, insulin preparation & oral antidiabetic agents, coma in D.M.

a14. Demonstrate drug affecting bone-calcium homeostasis; effect of vit D, parathyroid hormone, calciton in, disturbance of calcium homeostasis, osteoporosis.

a15. Mention and explain pharmacology of hypothalamic &pituitary hormones, thyroid hormones &anti thyroid drugs, corticosteroids, sex hormones.

a16. Describe the central nervous system pharmacology; mention and explain mech of action, side effects and clinical uses; sedative-hypnotics , anxiolytics, spasmolytic drugs, antipsychotic drugs, antidepressant, antiepileptic, analgesic drugs, drug therapy of gout & rheumatoid arthritis, opoids analgesia, drug abuse, local anesthetic, general anesthetic.

a17. Illustrate cardiovascular pharmacology; classification of antiensive drugs, hypertensive crisis, drug management of heart failure, inotropic drugs, major antianginal drugs, antiarrythmic drugs.

a18. Demonstrate the pharmacology of chemotherapy; mention and explain antimicrobial, anti parasitic, antifungal, antiviral, anticancer therapy.

**b) Intellectual Skills:**

By the end of the course the student should have the ability to:

b1. Correlate between the medical condition of the patient and the the drug that will be used for treatment.

b2. Integrate the effect of drug on the patient.

b3. Identify the problem implied on the patient due the drug used

**b4.** Interpret the advantages and disadvantages of different types of drug therapy**.**

**c) Professional and Practical Skills:**

By the end of the course the student should have the ability to:

c1. Evaluate patient medical condition.

c2. Define the appropriate medication.

c3. Perform management using the adjusted doses efficiently.

**d) General and Transferable Skills:**

By the end of the course the student should have the ability to:

d1. Communicate with each others and interact effectively with patients using the propitiate drug therapy, then write a report about the mechanism, effect, side effect and complications or discuss with staff members.

d2. Present orally plan of treatment for the patient with certain disease in accordance with the standard scientific guidelines in seminars or group meetings, discuss results, defend his/her ideas with staff members. Students can recognize and accept the limitations in their knowledge and clinical skills.

d3. Manipulate computer programs, do web search, to write an essay about patient with medical problems, with trial of solving.

d4. Work together to correlate suitable treatment of patient and discuss their point of view for ttt.

**3. Contents**

| Topic | No. of hours | Lecture | Tutorial/ Practical |
|---|---|---|---|
| Pharmacokinetics & dynamics | 3 | 1 | 2 |
| Adrenergic pharmacology | 6 | 2 | 4 |
| Cholinergic pharmacology | 3 | 1 | 2 |
| Autacoids | 3 | 1 | 2 |
| Central Nervous System | 3 | 1 | 2 |
| Cardiovascular pharmacology | 6 | 2 | 4 |
| Renal pharmacology | 3 | 1 | 2 |
| Respiratory pharmacology | 3 | 1 | 2 |
| Gastrointestinal pharmacology | 3 | 1 | 2 |
| Endocrine pharmacology | 3 | 1 | 2 |
| Blood pharmacology | 4 | 1 | 3 |
| Chemotherapy | 5 | 2 | 3 |
| **Total** | **45** | **15** | **30** |
| **Credit** | **2** | **1** | **1** |

**4. Teaching and learning methods**

5.Lectures.

6.Practical sessions.

7.Operative theater work.

8.Application of anesthetic plan under observation.

**5. Students Assessment Methods**

| Method of assessment | The assessed ILOs |
|---|---|
| 5.1- Observation of attendance and absenteeism. | - General transferable skills, intellectual skills |
| 5.2-Written Exam:<br>-Short essay: 40%<br>-structured questions: 25%<br>-MCQs: 20%<br>-Commentary, Problem solving: 15% | <br>- Knowledge<br>- Knowledge<br>- Knowledge, intellectual skills<br>- Intellectual skills, General transferable skills, |
| 5.3-Structured Oral Exam | - Knowledge, Intellectual skills, General transferable skills |

**Assessment Schedule**

**Assessment 1:** Final written exam. 96 weeks

**Assessment2;** Final Structured Oral Exam 96 weeks

**Assessment 3:** Evaluation of the research & Thesis work 96 weeks

**Weighting of assessment**

| | |
|---|---|
| Final written exam | 50% |
| Final Structured Oral Exam | 50% |
| **Total** | 100% |

## 6. List of References

### 6.1- Essential Books (Text Books)

Goodman and Gilman (2016) Manual of Clinical Pharmacology and therapeutics. Mc Graw Hill, Katzung (2018),

### 6.2- Recommended Books

Clinical Pharmacology book, Assiut university.

### 6.3- Periodicals, Web Sites, … etc

1. http://www.ncbi.nlm.gov/
2. Findarticle.com
3. Freemedicaljournals.com

## 7. Facilities required for teaching and learning

1. Appropriate teaching aids (photographs, anesthetic drug ampoules or vials, laryngoscope, mask, oral &nasal airway, endotracheal tube, ampu bag, Laryngeal airway, double lumen tube ,canula, different fluid solutions, spinal & epidural needle, monitors, anesthesia machine, ventilators, syringe pump, PCA set).
2. Facilities for field work: Operative List, ICU work.
3. Computers with net connection.
4. Data Show and overhead projectors.

**Course Coordinator:** Dr. Hala Ibraheem

**Head of Department:** prof. Sanaa Abd-El-Aal

**Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013,Revised:1/12/2018**

# Course Specification of MS degree in Anaesthesia and Surgical Intensive Care Biophysics and Clinical Measurements

**Sohag University** **Faculty of Medicine**

1. Program in which the course is given: MS degree in Anesthesia and Surgical Intensive Care
2. Major or Minor element of the program: Minor
3. Department offering the program: Anesthesia and Surgical Intensive Care
4. Department offering the course: Anesthesia and Surgical Intensive Care
5. Academic year / Level :First Part
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

## A- Basic Information

**Title**: Anesthesia and Surgical Intensive Care

**Code**: ANE0501-200

Total hours :

| Lectures | Practical: | Tutorial | Total: | Credit |
|---|---|---|---|---|
| 30 | 30 | ----- | 60 | 3 |

## B- Professional Information

### 1. Overall Aims of Course

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

Demonstration of knowledge of application of the principles and knowledge of the medical sciences in the field of physics.

Demonstrate an understanding of the principles of physics.

Describe the principles that govern monitoring devices.

### 2. Intended Learning Outcomes of Course (ILOs):

According to the intended goals of the faculty

**a) Knowledge and Understanding:**

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

a1. Describe definition of the heat; ambient, latent, clinical application, transfer of heat

a2. Demonstrate laws of gases; Boyle's, Charle's, Lussac, Dalton, Kelvin scale, equation of state of perfect gas.

a3. Explain liquefaction of gases; critical temp, critical pressure, physical properties of gases, clinical application of gas cylinder.

a4. Demonstrate solubility of gases in liquids; factor affecting solubility, solubility coefficient, blood/gas partition coefficient.

a5. Define diffusion of gases; physical factors affecting diffusion, Bulk flow, factors affecting diffusion of gases across pulm membrane

a6. Mention and explain flow of fluid through uniform tube, through tubes of variable diameters and through orifice.

a7. Illustrate properties of gases, liquid& vapor; density, specific gravity, viscosity, humidity, surface tension, osmotic pressure & clinical application.

a8. Describe Vaporization & vaporizer; properties of vapor, vapor pressure curve, types of vaporizers, factor affecting design, calibrations, factor affecting performance.
a9. Explain humidifier; types, advantages, mechanism, complication.
a10. Illustrate mechanical ventilators; types, criteria, ventilation – perfusion disturbance.
a11. Illustrate pressure reducing valves; types, advantages, physical principles.
a12. Mention and explain fires & explosion; prevention, source, ignitable anesthetics.
a13. Demonstrate nuclear physics and ionizing radiation; atomic structure, radioactivity, measurement of radiation.
a14. Mention and explain measuring system; sensor, processor, recorder, unit of measurement.
a15. Define derived mechanical units; measurement of pressure, temp, humidity, volume, blood loss, measurement of flow, blood flow, gas flow, blood pressure, CVP, PAWP.
a16. Illustrate analysis of gas mixture acid-base state; measurement of O2 tension, co2 tension, PH, acid-base evaluation.
a17. Mention and explain monitoring of cardiovascular system; arterial blood pressure, ECG, central venous catheterization, pulm art catheter, cardiac output.
a18. Explain monitoring of respiratory system; precordial & esophageal stethoscope, pulse oximetry, capnography, anesthetic gas analysis.
a19. Mention monitoring of CNS; electroencephalography, evoked potentials.
a20. Mention muscular monitoring; peripheral nerve stimulator.

**b) Intellectual Skills:**

By the end of the course the student should have the ability to:

b1. Correlate between the state of the anesthetized patient and the parameters that observed.
b2. Integrate the effect of calibrated equipments on the patient.
b3. Identify the problem implied on the patient due non calibrated equipment.
b4. Interpret the principles & laws that govern anesthesia**.**

**c) Professional and Practical Skills:**

By the end of the course the student should have the ability to:

c1. Evaluate anesthetic equipment status.
c2. Define the appropriate equipment.
c3. Use the measuring system for observing the patient.
c4. Perform blood gas analysis, CVP& PAWP insertion.
c5. Monitoring of the patient

**d) General and Transferable Skills:**

By the end of the course the student should have the ability to:

d1. Communicate with each others and interact effectively with patients using the propitiate anesthetic sets, then write a report about the result of calibrations, integrity of these sets and complications and r discuss with staff members.
d2. Present orally plan for test the anesthetic equipments in accordance with the standard scientific guidelines in seminars or group meetings, discuss results,

defend his/her ideas with staff members. Students can recognize and accept the limitations in their knowledge and clinical skills.

d3. Manipulate computer programs, do web search, to write an essay about patient with certain problems due anesthetic equipments and with trial of solving.

d4. Work together to check anesthetic equipments integrity and discuss their point of view.

**3. Contents**

| Topic | No. of hours | Lecture | Tutorial/ Practical |
|---|---|---|---|
| Heat | 4 | 2 | 2 |
| Laws of gases | 4 | 2 | 2 |
| Liquefaction of gases | 4 | 2 | 2 |
| Solubility of gases | 4 | 2 | 2 |
| Diffusion of gases | 4 | 2 | 2 |
| Flow of fluids | 4 | 2 | 2 |
| Properties of gases, liquid& vapor | 4 | 2 | 2 |
| Vaporization & vaporizer | 4 | 2 | 2 |
| Humidifier | 4 | 2 | 2 |
| Mechanical ventilators | 4 | 2 | 2 |
| Pressure reducing valves | 4 | 2 | 2 |
| Fires & explosion | 4 | 2 | 2 |
| Nuclear physics | 4 | 2 | 2 |
| Analysis of gas mixture | 4 | 2 | 2 |
| Monitoring of the patient | 4 | 2 | 2 |
| **Total** | **60** | **30** | **30** |
| **Credit** | **3** | **2** | **1** |

**4. Teaching and learning methods**

1. Lectures.
2. Practical sessions.
3. Operative theater work.
4. Application of anesthetic plan under observation.

**5. Students Assessment Methods**

| Method of assessment | The assessed ILOs |
|---|---|
| 5.1- Observation of attendance and absenteeism. | - General transferable skills, intellectual skills |
| 5.2-Written Exam:<br>-Short essay: 40%<br>-structured questions: 25%<br>-MCQs: 20%<br>-Commentary, Problem solving: 15% | <br>- Knowledge<br>- Knowledge<br>- Knowledge, intellectual skills<br>- Intellectual skills, General transferable skills, |
| 5.3-Structured Oral Exam | - Knowledge, Intellectual skills, General transferable skills |

**Assessment Schedule**

1- Assessment 1: written examination week 24
2- Assessment 2: Structured Oral Exam week 24
3- Assessment of attendance & absenteeism throughout the course

**Weighting of Assessments**

| | |
|---|---|
| Final-term written examination | 50 % |
| Structured Oral Exam | 50 % |
| Total | 100% |

Formative only assessments: attendance and absenteeism

## 6. List of References

6.1- Course Notes:
Book for Physics, Anesthesia & ICU department, Sohag University
6.2-Essential books:
Basic physics & measurement in anesthesia; Davis P.D., Parbrook G. D. and Kenny C.N., 4th edition, Butterworth Heirmann, pp2-3, 1995.
6.3-Periodicals and websites:
British Journal of Anesthesia, Anesth. Analg journal, Anesthesiology journal, Acta anaesthesiol Scand, Eur journal Anaesethesiol.

www.sciencedirect.com

## 7. Facilities required for teaching and learning

7.1- Facilities for field work: Operative List, ICU work.

7.2- Computers with net connection.

7.3- Data Show and overhead projectors.

**Course Coordinator:** Dr. Aiman Abd-Elkareem

**Head of Department:** Prof. Dr. Ahmed El-Saeed

**Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013, Revised:1/12/2018**

# Course Specification of Internal Medicine for MS degree in Anaesthesia and Surgical Intensive Care

**Sohag University** **Faculty of Medicine**

1. Program on which the course is given: Anaesthesia and Surgical Intensive Care (1st part).
2. Minor element (optional) of program.
3. Department offering the program: Internal Medicine.
4. Academic year / Level: Post graduate.
5. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

## A. Basic Information

Title: Internal Medicine for Anesthesia and Surgical Intensive Care

**Code**: MED0501-200 Total hours :

| Lectures: | Practical: | Tutorial | Total: | Credit |
|---|---|---|---|---|
| 30 | 30 | ----- | 60 | 3 |

## B. Professional Information

### 1. Overall Aims of Course

By the end of the course of Internal Medicine, the candidate should be able to:

1- Deal with common medical conditions on the basis of adequate history taking, physical examination interpretation of relevant supportive investigations and management.
2- Deal with acute medical emergencies safely and effectively.
3- Identify the indications and logistics of referring patients to higher levels of experience or specialization.
4- Perceive and integrate progress in medical technology.

### 2. Intended Learning Outcomes of Course (ILOs)

**a) Knowledge and Understanding:**

a1. Grasp the spectrum of clinical symptomatology related to different Internal medicine disorders.
a2. Appreciate the clinical spectrum of common medical conditions with multisystem affection.
a3. Describe the concept of emergency management of acute medical disorders.

**b) Intellectual Skills**

b1. Interpret the most important symptoms and signs of disease in Internal Medicine patients.
b2. Formulate appropriate management plans for individual patients presenting with the most common medical disorders.
b3. Make decisions regarding common clinical situations using appropriate problem solving skills.
b4. Interpret X-ray and CT films, blood gas and blood picture reports covering the most important medical conditions.

**c) Professional and Practical Skills**

c1. Conduct a proper general examination and identify normal and major abnormal physical signs.

c2. Conduct proper regional examination of the thorax and abdomen by inspection, palpation, percussion and auscultation to identify:
   1. Surface anatomy of internal organs.
   2. Normal physical signs.
   3. Major abnormal physical signs.

c3. Develop and present a comprehensive medical sheet including history and physical examination.
c4. Interpret the significance and relevance of abnormal physical signs.
c5. Identify the appropriate supportive investigations relevant to a particular patient and adequately interpret the results.
c6. Integrate the patient's symptomatology, historic data, abnormal physical signs and investigations into a comprehensive differential diagnosis.
c7. Identify adequate logistics for further patient assessment and management.
c8. Become acquainted with specialist approach to the diagnosis of common medical conditions related to the specialty.
c9. Get exposed to less common medical disorders within the domain of specialty.
c10. Get updated information about and demonstrations on modern diagnostic tools within the specialty.
c11. Get acquainted with special therapeutic and interventional techniques related to the specialty.
c12. Adequately interpret the results of common laboratory investigations as urine analysis, blood picture, liver and kidney function tests, etc.
c13. Properly interpret ECG recordings of common conditions as ventricular hypertrophy, myocardial infarction, common arrhythmias, etc.
c14. Get acquainted with the methods of patient clinical assessment and monitoring, their significance and inter-relations.
c15. Adequately evaluate the patient's acute morbidity score and need for urgent intervention.
c16. Identify a clear priority plan in the patient's management.

**d) General and Transferable Skills**

d1. Presentation, analyzing and solving of clinical problems .

**3- <u>Contents</u>**

**<u>DETAILED CONTENTS</u>**

**1. <u>Cardiology Teaching</u>**

The cardiology curriculum is designed so that at the end of the course the candidate will be able to:

2- Know the principles of cardiovascular anatomy and physiology which are relevant to cardiovascular diseases.
3- Know the basic patho-physiological and structural alteration that occur in cardiovascular diseases.
4- Know the important causes, presenting features (symptoms, signs and alteration in specific investigations) that may occur in each of the following conditions:
   - Heart failure (acute, chronic, systolic, diastolic)
   - Rheumatic fever, rheumatic heart disease including the affection of the pericardium and cardiac valves.
   - Major dysrhythmias especially the followings: sinus tachycardia, bradycardia, atrial fibrillation, ventricular tachycardia, and fibrillation .
   - Causes and management of syncope.

- Coronary artery diseases (pathogenesis, risk factors, clinical features, complications and detail of both prophylactic and curative treatment)
- The problem of hypertension in Egypt and the importance of all grades of elevated blood pressure also causes and features of essential and secondry hypertension,, also methods of treatment and the problem attending the use of antihypertensive drugs.
- The interaction between the lung and the heart and causes Clinical presentation and manegment of pulmonary embolism and cor pulmonale)
- Properties, uses, and side effects of important cardiovascular drugs used in treatment of common diseases.

**4- <u>Skills: The graduate should be able to:</u>**

- Elicit normal and abnormal cardiovascular signs such as general features, attitude, facies, BP arterial and venous pulse,
- Elicit normal and abnormal physical signs in chest and abdominal examination that may cause or accompany or result from cardiac disease such as hepatomegaly, splenomegaly, ascites,……
- Can perform successfully basic life support and cardiac resuscitation (cardiac message, mouth to mouth breath) either alone or with a team.
- He should be able to interpret normal and abnormal cardiac shadows in chest Xray.

**Cardiology teaching (Methodology):**

A combination of strategies are used to reach the above mentioned objects, this include lectures, clinical and self teaching.

**1-Lectures:**

Lectures are given to accompany the clinical and the practical teaching. They are designed to cover the sailent features, difficult aspects, recent advances not usually incorporated in student's text books and specific personal practices of the following subjects:

**A. <u>Lectures)</u>**

| **Topics** | **No of lectures** |
|---|---|
| Cardiovascular Symptoms and signs | 1 |
| Rheumatic fever | 1 |
| Infective endocarditis | 1 |
| Valvular diseases | 1 |
| <u>Coronary artery diseases</u><br>-Atherosclerosis-Acute coronary syndromes<br>-Chronic ischemia | 1 |
| Systemic Hypertension | 1 |
| <u>Cardiomyopathy:.</u><br>-dilated cardiomyopathy<br>Hypertrophic cardiomyopathy | 1 |
| <u>Arrhythmias</u>:.<br>-Sinus tachycardia<br>-sinus bradycardia<br>-AF -VT | 1 |
| <u>Heart failure</u><br>-Systolic Heart Failure<br>-Diastolic Heart Failure | 1 |

| | |
|---|---|
| -High cardiac output heart failure | |

**B. <u>Practical teaching (cardiology)</u>**

Practical Topics:.

1-Cardiovascular history taking

2-Cardiac examination (including pulse BP, and Jugular venous pressure comment)

3-Cardiac valve lesions

4-Rheumatic heart disease

5-Infective endocarditis

6-Heart failure

7-Cardiomyopathy

3-Self teaching: This includes:

- Personal or group ward responsibilities including follow up of inpatients in the department.
- Cardiology outpatient sessions in which the student examine the patients with the assistant lecturer to recognize the presenting

**<u>2-Endocrinology teaching</u>**

The curriculum consisits of an integrated theortical, clinical and practical training courses.

**<u>Terminal objectives are</u>**:

1. To know the principles of the physiology of endocrinal system
2. To know the basic pathophysiological and structural alteration changes that occur in common endocrinal diseases.
3. To know important presenting features of endocrinal diseases
4. To be able to elicit skeletal disproportions and to identify
5. body mass index
6. To diagnose various endocrinal emergencies
7. To know the basics of various investigations of endocrinal diseases
8. To interpret endocrinal imagings such as X-ray , CT and MRI of different endocrinal organs.

**Endocrinology teaching (Methodology)**

A combination of stratiegies is used to reach the above mentioned objectives. This include:

| Topics | No of lectures |
|---|---|
| Princilples of endocrinology | 1 |
| Disorders of the thyroid gland<br>Hypothyroidism<br>Hyperthyroidism | 1 |
| Pheochromocytoma | 1 |
| Endocrinology of blood pressure control | 1 |
| Diabetes mellitus | 2 |
| Hypoglycemia | 1 |

**3- Hematology Teaching**

The curriculum consists of theortical practical and training courses.

**Terminal objectives in teaching hematology are:**

1-To know the physiology of blood cells (RBCs, WBCs and platelets. And homeostasis.

2-To know the important causes, presentation and management of various types of anemias.

3-To know causes, manifestation and management of bleeding and coagulation disorders.

Hematology teaching (Methodology) :

A combination of stratiegies are used to reach the above mentioned objectives. This include:

**A- lectures**

| **Topics** | **No of lectures** |
|---|---|
| Anemias;.<br>-Iron deficiency anemia<br>-Megaloplastic anemia<br>-Aplastic anemia | <br>1<br>1<br>3 |
| Disorders of platelets and vessel wall<br>"Thrombocytopenia"<br>-Purpura | 1 |
| -Coagulation disorders and Anticoagulants | 1 |

**5-Nephrology teaching**

| **Topics** | **No of lectures** |
|---|---|
| -Structure and function | 1 |
| -Major clinical syndromes in nephrology:.<br>Nephrotic syndrome<br>Acute nephritic syndrome | <br>1<br>1 |
| -Disturbed renal function:.<br>Acute renal failure<br>Chronic renal failure<br>Renal dialysis and | <br>1<br>1<br>1 |
| -Investigations of renal disease | 1 |

B-Practical nephrology:.

Topics:.
1-History taking in renal disorders
2- Nephrotic syndrome
3-Generalized oedema
4-cute nephritis
5-Chronic renal failure
6-Acute renal failure

**6-Gastroenterology ,Hepatology teaching**

**Terminal objectives in teaching gastroenterology are:**

1. To know the basic physiology of the digestive system (oesphagus, stomach, small, large intestine and the pancreas)
2. To know the anatomy and the basic pathophysiological and structural changes that occur in the gastrointestinal tract in various gastrointestinal diseases.
3. To know the gastrointestinal symptoms such as vomiting , diarrhea, constipation,…… and how to elicit important findings through abdominal examination, examination of the buccal cavity and PR examination.

**The Hepatology curriculum is designed so that at the end of the course the student is able to:**

1. Know the principles of hepatobiliary system anatomy and physiology which are relevant to hepatobiliary diseases.
2. Know the basic pathophysiological and structural alteration that occur in hepatobiliary diseases.
3. Know the important causes, presenting features (symptoms, signs and alteration in specific investigations) that may occur in each of the following conditions:
   - Jaundice (classification, causes and manegment)
   - Ascites including causes rather than portal hypertension
   - Liver cirrhosis (causes, presentation and complications).
   - Liver cell failure ( acute and chronic)
   - Hepatomegaly (causes and manegment)
   - Splenomegaly (including causes and manegment of huge splenomegaly)
   - Hepatitis (acute and chronic)

**A-Lectures**

| Topics | No of lectures |
|---|---|
| -Bleeding disorders | 1 |
| Peptic ulcer and gastritis | 1 |
| Hepatitis | 1 |
| Cirrhosis | 1 |
| Hepatocellular failure | 1 |
| Ascites<br>Jaundice | 1 |

Practical

GIT and Hepatology

**Topics:.**

1. History taking of gastroenterology and hepatobilliary disorders
2. Abdominal masses including malignancies
3. Hepatomegally
4. Spleenomegally
5. Vitamine deficiencies manifestations
6. Ascites
7. Hepatocellular failure
8. Acute and chronic hepatitis
9. Jaundice
10. Self teaching: This include:

- Personal responsibility including follow up of inpatients in the department.
- Hepatology outpatient sessions in which the student examine the patients with the assistant lecturer to recognize the presenting manifestations of the diseased and non diseased person

1. Respiratory disease teaching

**A-Lectures**

| Topics | No of lectures |
|---|---|
| COPD Asthma, emphysema | 1 |
| Interstial pulmonary fibrosis | 1 |
| Pneumonias | 1 |
| Suppurative syndrome | 1 |
| Tuberculosis | 1 |
| Respiratory failure | 1 |
| Pleural effusion | 1 |

B- Practical respiratory)

Topics:

1. History taking of chest diseases
2. Chest examination
3. Cyanosis tremors
4. Bronchial asthma,
5. Pleural effusion
6. Tuberclosis
7. Chest infection
8. Chronic suppurative lung diseases
9. Interpretation of X-ray chest

**4. Teaching and Learning Methods**

4.1- Illustrated lectures
4.2- Clinical training in the department for two months
4.3- Attendance in outpatients clinic (twice/week for 8 weeks)
4.4- Case studies in department conference (once/week for 8 weeks)
4.5- Interactive presentations (lectures with discussion)

## 5. Student Assessment Methods

| Method of assessment | The assessed ILOs |
|---|---|
| 5.1- Observation of attendance and absenteeism. | - General transferable skills, intellectual skills |
| 5.2-Written Exam:<br>-Short essay: 40%<br>-structured questions: 25%<br>-MCQs: 20%<br>-Commentary, Problem solving: 15% | <br>- Knowledge<br>- Knowledge<br>- Knowledge, intellectual skills<br>- Intellectual skills, General transferable skills, |
| 5.3-Structured Oral Exam | - Knowledge, Intellectual skills, General transferable skills |

**Assessment Schedule**

1- Assessment 1: written examination week 24
2- Assessment 2: Structured Oral Exam week 24
3- Assessment of attendance & absenteeism throughout the course

**Weighting of Assessments**

| | |
|---|---|
| Final-term written examination | 50 % |
| Structured Oral Exam | 50 % |
| Total | 100% |

Formative only assessments: attendance and absenteeism

## 6. List of References

6.1- Course Notes
6.2- Essential Books (Text Books)
- Kumar and Clarke Textbook of Medicine; Parveen Kumar and Richard Clark; Blackwell Science; 9th edition, 2018
-Hutchison's Clinical Methods; Robert Hutchison; Harry Rainy; 24st edition;2018
6.3- Recommended Books
- Goldman-Cecil Textbook of Medicine;25th edition, 2018.
- Harrisson'sprincipales of internalmedicine,20th edition, 2018.
6.4- Periodicals, Web Sites, etc

## 7. Facilities Required for Teaching and Learning

- Lecture rooms
- Round rooms
- Accessibility to hospital wards, clinics and emergency department
- Audio-visual teaching equipments (computers, data show projector, video, etc.)
- Models and mannequins
- Video tapes and scientific pictures archives.
- Radiology collections and archives.
-Library for the department.

**Course Coordinator:** Dr. Mohamed Mustafa Ahmed Malak**.**

**Head of Department:** Prof. Usama Ahmed Arafa.

**Date:** 18/12/2011, Revised:1/9/2012, Revised:1/12/2013**, Revised: 1/12/2018**

# Course Specifications of Applied biostatistics (with computer use)and Research Methodology in Master degree of Anesthesia & Surgical Intensive

**Sohag University** **Faculty of Medicine**

1. Program Title : Master degree in Applied biostatistics (with computer use) and Research Methodology Department.
2. Major/minor element of the program : Minor
3. Department offering the course: Community Medicine and public Health Dep.
4. Department offering the program Anesthesia & Surgical Intensive
5. Academic year /level : 1st part
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

## A. Basic Information

7. **Title:** Master degree Anesthesia & Surgical Intensive Biostatistics and Computer use for health services **and Research Methodology**

**Code:** COM: 0501-200

**Total Hours:**

| Title | Lectures | Practical/ surgical | Total | credit |
|---|---|---|---|---|
| Applied biostatistics and computers & Research methodology | 15 | 30 | 45 | 2 |

## B. Professional Information

**Applied Biostatistics Module:**

**1. <u>Overall Aims of Course</u>**

a. To influence the students to adopt an analytical thinking for evidence based medicine.
b. To use precisely the research methodology in researches and computer programs SPSS, Epi Info and Excel in data analysis.

**Research Methodology Module:**

**1. <u>Overall Aims of Course</u>**

The aim of this course is to provide the postgraduate student with the advanced medical knowledge and skills essential for the mastery of practice of specialty and necessary to provide further training and practice in the field of Public health and Community Medicine through providing:

1. Recent scientific knowledge essential for the mastery of practice of Public Health and Community Medicine according to the international standards.

2. Skills necessary for preparing for proper diagnosis and management of community problems, skills for conducting and supervising researches on basic scientific methodology.
3. Ethical principles related to the practice in this specialty.
4. Active participation in community needs assessment and problems identification.
5. Maintenance of learning abilities necessary for continuous medical education.
6. Upgrading research interest and abilities.

**2. Intended Learning Outcomes of Courses (ILOs)**

**Applied Biostatistics Module:**

**a) Knowledge and understanding:**

By the end of the course, the student is expected to be able to:

a1. Mention different programs of analysis of data and statistical packages
a2. Define the recent advances of sources of data and methods of collection.
a3. Summarize data, construct tables and graphs
a4. Calculate measures of central tendency and measures of dispersion
a5. Describe the normal curves and its uses
a6. Illustrate selected tests of significance and the inferences obtained from such tests
a7. Illustrate selected tests of significance for parametric and non parametric inferences
a8. Identify factor analysis and discrimination analysis.

**b) Intellectual Skills**

By the end of the course, the student is expected to be allowed to:

b1. Mention how to collect and verify data from different sources
b2. Interpret data to diagnose prevalent problems Anesthesia &Surgical Intensive Care

**c) Professional and Practical Skills:**

By the end of the course, the student is expected to practice the following:

c1. Perform recent advanced technological methods in collection, analysis and interpretation of data and in management of prevalent problems in Anesthesia &Surgical Intensive Care

**d) General and Transferable Skills:**

By the end of the course, the student is expected to be able to:

d1. Use appropriate computer program packages.
d2. Use of different sources for information and knowledge about biostatistics.

**Research Methodology Module:**

**2. Intended Learning Outcomes of Courses (ILOs)**

**a) Knowledge and understanding:**

By the end of the course, the student is expected to be able to:

a1. Define the recent advances of screening tests pertinent to selected diseases and the at-risk approach in the application of screening tests.
a2. Explain the usefulness of screening tests, and calculate sensitivity, specificity, and predictive values.
a3. Describe the study design, uses, and limitations.
a4. Mention the recent advances of principles, methodologies, tools and ethics of scientific research.
a5. Explain the strategies and design of researches.
a6. Describe bias and confounding.
a7. Describe sampling techniques and list advantages of sampling
a8. Identify principles of evidence based medicine.

**b) Intellectual Skills**

By the end of the course, the student is expected to be able to:

b1. Conduct research studies that adds to knowledge.
b2. Formulate scientific papers in the area of public health and community medicine
b3. Innovate and create researches to find solutions to prevalent community health problems
b4. Criticize researches related to public health and community medicine

**c) Professional and Practical Skills:**

By the end of the course, the student is expected to be able to:

c1. Enumerate the basic and modern professional skills in conducting researches in the area of public health and community medicine.
c2. Design new methods, tools and ways of conducting researches. .

**d) General and Transferable Skills:**

By the end of the course, the student is expected to be able to:

d1. Use of different sources for information and knowledge to serve research.
d2. Work coherently and successfully as a part of a team and team's leadership in conducting researches and field studies.

**3. Contents**

| Topic | No. of hours | Lecture | Tutorial/ Practical |
|---|---|---|---|
| **Applied Biostatistics Module:** | | | |
| Recent advances in collection, analysis and interpretation of data | 3 | 1 | 2 |
| -Details of Tests of significance:<br>Proportion test | 3 | 1 | 2 |
| -Chi-square test | 1.5 | .5 | 1 |
| -Student T test | 1.5 | .5 | 1 |
| -Paired T test | 1.5 | .5 | 1 |
| -Correlation | 1.5 | .5 | 1 |
| -Regression | 2 | 1 | 1 |
| -ANOVA test | 3 | 1 | 2 |
| -Discrimination analysis | 3 | 1 | 2 |
| -Factor analysis | 3 | 1 | 2 |
| -Parametric and non parametric tests | 4.5 | .5 | 4 |

| **Research Methodology Module:** | | | |
|---|---|---|---|
| Details of epidemiological studies (case control, cohort and cross sectional ) | 3 | 1 | 2 |
| Clinical trials, Quasi experimental study | 3 | 1 | 2 |
| Bias and errors | 2 | 1 | 1 |
| Setting a hypothesis | 1.5 | .5 | 1 |
| Recent advances in screening | 1.5 | .5 | 1 |
| - Evidence – based Medicine:<br>Concept and examples<br>Applicability<br>Scientific writing:<br>A protocol<br>A curriculum | 3 | 1 | 2 |
| Setting an objective<br>- Critical thinking | 2 | 1 | 1 |
| Formulation of papers | 1.5 | .5 | 1 |
| **Total hours** | **45** | **15** | **30** |
| **Total Credit hours** | **2** | **1** | **1** |

## 4. Teaching and Learning Methods

4.1- Lectures
4.2- Practical sessions
4.3- Computer search assignments
4.4- Computer application

## 5. Student Assessment Methods

| Method of assessment | The assessed ILOs |
|---|---|
| 5.1- Observation of attendance and absenteeism. | - General transferable skills, intellectual skills |
| 5.2-Written Exams: | - Knowledge |
| -Short essay: 40% | - Knowledge |
| -structured questions: 25% | - Knowledge, intellectual skills |
| -MCQs: 20% | - Intellectual skills, General transferable skills, |
| -Commentary, Problem solving: 15% | - Practical skills, intellectual skills |
| 5.3-Structured Oral Exams | - Knowledge |
| 5.4Computer search assignment | - general transferable skills, intellectual skills |

**Assessment Schedule**

Assessment 1….Final written exam Week: 24
Assessment 2…..Final oral exam Week: 24
Assessment 3 Attendance and absenteeism throughout the course
Assessment 4 Computer search assignment performance throughout the course

**Weighting of Assessments**

| | |
|---|---|
| Final-term written examination | 50% |
| Final oral Examination | 50% |
| Total | 100% |

**Formative only assessments: attendance and absenteeism and Computer search assignments performance.**

## 6. List of References

**Applied Biostatistics Module:**

6.1- Essential Books (Text Books)

1-Maxy-Rosenau Public health and preventive medicine, 2008.,Robert Wallace, publisher McGraw-Hill Medical; 15 edition.

6.2- Recommended Books

1- Dimensions of Community Based projects in Health Care, 2018. Arxer, Steven L., Murphy, John W.; 1st edition.

2- Parks Text Book of Preventive & Social Medicine. 2017., K. Park. BanarsidasBhanot Publishers; 23 edition.

3- Clinical Epidemiology: The Essentials, 2013, Robert F., Suzanne W. Fletcher, Grant S., publisher Lippincott Williams & Wilkins; 5 edition.

6.3- Periodicals, Web Sites, …etc

1-American Journal of Epidemiology

2-British Journal of Epidemiology and Community Health

3- WWW. CDC and WHO sites **7**

**Research Methodology Module:**

6.1- Essential Books (Text Books)

1-Maxy-Rosenau Public health and preventive medicine, 2008.,Robert Wallace, publisher McGraw-Hill Medical; 15 edition.

6.2- Recommended Books

1- Dimensions of Community Based projects in Health Care, 2018. Arxer, Steven L., Murphy, John W.; 1st edition.

2- Parks Text Book of Preventive & Social Medicine. 2017., K. Park. BanarsidasBhanot Publishers; 23 edition.

3- Clinical Epidemiology: The Essentials, 2013, Robert F., Suzanne W. Fletcher, Grant S., publisher Lippincott Williams & Wilkins; 5 edition.

6.3- Periodicals, Web Sites, …etc

1-American Journal of Epidemiology

2-British Journal of Epidemiology and Community Health

**7.** 3- WWW. CDC and WHO sites **Facilities Required for Teaching and Learning:**

**Applied Biostatistics Module:**

- Adequate conditioned space for staff and assistants.
- Adequate conditioned teaching facilities.
- Audiovisual Aids: Data show, overhead and slide projectors and their requirements.

**Research Methodology Module:**

- ADEQUATE INFRASTRUCTURE: including teaching places (teaching class, teaching halls, teaching laboratory), comfortable desks, good source of aeration, bathrooms, good illumination, and safety & security tools.
- TEACHING TOOLS: including screens, computers including cd (rw), data shows, projectors, flip charts, white boards, video player, digital video camera, scanner, copier, color and laser printers.

**Course Coordinator:** Dr/Rasha Abd-ElHameed Ali

**Head of Department:** Prof/ Ahmed Fathy Hammed

**Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013, Revised:1/12/2018**

# Course Specifications of Anesthesia & Surgical intensive care for master degree in Anesthesia & Surgical intensive care

**Sohag University** **Faculty of Medicine**

1. Program (s) on which the course is given: Master Degree
2. Major or minor element of programs: Major
3. Department offering the program: Dept. of Anesthesia &Surgical Intensive Care.
4. Dept offering the course: Dept. of Anesthesia &Surgical Intensive Care.
5. Academic year / Level second part
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

## A. Basic Information

**Title**: Anesthesia & surgical care for master degree in Anesthesia & Surgical intensive **care**:ANE0501-200

Total hours :

| Lectures | Practical | Tutorial/clinical | Total hours | Credit |
|---|---|---|---|---|
| ٢٢٥ hours | --- | 300 hours | 525 hours | 25 |

## B. Professional Information

1- **Overall aims**

Demonstration of knowledge of application of the principles and knowledge of the medical sciences in the field of Anesthesia &Surgical Intensive Care
Demonstration of knowledge of Anesthesia &Surgical Intensive Care
Demonstrate an understanding of the principles and practice of anesthesia.
Demonstrate the steps used for patient evaluation.
Describe the principles that govern taking decision for the suitable type of anesthesia for the patient.
Demonstration of types, mechanism of actions, effect, clinical uses, complication and drug interaction of anesthetic drugs.
Describe the threats to anesthesiologist, and common medical errors, which can occur during this practice of medicine.
Early, detection, and management of any complication

**2- Intended Learning Outcomes (ILOs)**

a) **Knowledge & Understanding**

By the end of the course, students should he able to:

a1. Describe principles and the types of anesthetics.
a2. Demonstrate how to evaluate the patient and define the suitable type of anesthesia and describe the principles for CPR.

**Anesthesia Course Specifications**

a3. Demonstrate how to diagnose proper preoperative patient evaluation, ASA (American society of anesthiologists) physical status, and correlation with the surgery and if it is elective or emergency surgery.

a4. Mention and explain pre anesthetic medications and illustrate the suitable drugs and their specific effect to decrease the risk of aspiration, decrease anxiety, and decrease the stress during intubation.

a5. Define the patient monitoring; cerebral monitoring, hemodynamic as non invasive & invasive arterial blood pressure monitoring, CVP measuring.

a6. Mention the breathing system, component of Mapelson circuits, classifications, its performance characteristics. Circle system component, optimization of its design, and character of resuscitation system.

a7. Illustrate the essential features of anesthesia machine, purpose, and problem associated with anesthesia ventilator and how to manage.

a8. Demonstrate knowledge of airway management, define the use, advantages and disadvantages of face mask, nasal airway, oral airway., How to manage difficult air way & its causes. Illustrate the importance of endo-tracheal tube and explain proper tube location.

a9. Mention types of Inhalational anesthetics and illustrate the factors affecting alveolar concentration, factors affecting recovery. Mention the potent inhalational anesthetics (Isoflurane, Desflurane, Sevoflurane, Enflurane and Halothane), describe their mechanism, MAC, effect and toxicity. Illustrate the advantages of Sevoflurane over other inhalational agents.

a10. Define the types of nonvolatile anesthetics; explain properties of the ideal intravenous anesthetic agents, and classification of IV Anesthetics. Explain and define mechanism of action, Effects and Adverse effects of intravenous anesthetic (Barbiturates e.g. Thiopental, Ketamine, Propofol, etomidate, benzodiazepines); on CNS, cardiovascular system, skeletal muscle, respiratory system, and Hepatorenal function.

a11. Explain and define types, classification of muscle relaxants, mechanism of action, reversal of block, pharmacodynamics & pharmacokinetics.

a12. Explain the types of cholinesterase inhibitors, mechanism of action, muscarinic effect of cholinesterase inhibitors, Use of neostigmine to reverse the neuromuscular blockers. The role of anticholinergic drugs.

a13. Explain the adrenoceptor physiology, receptor selectivity of the adrenergic agonist and antagonist, effect of adrenergic agonists on organ systems, clinical consideration and uses of each drug.

a14. Define the hypotensive agents effect on different body systems. Demonstrate the controlled hypotension, role of these drugs to achieve the hypotension contraindication, complications.

a15. Define local anesthetics, their classification, structural relationship, physiochemical proprieties, effect on different body systems, and explain the risk of unintentional I.V. injection of bupivacaine, local anesthetic overdose.

a16. Describe the principles of regional Anesthesia and explain the advantages of regional anesthesia versus general anesthesia. Mention the methods of regional Anesthesia. Difference between spinal, epidural and caudal.prepheral nerve blocks.

a17. Illustrate the cardiac cycle, determination of ventricular performance, assessment of the ventricular function, coronary perfusion, patho-physiology of heart failure.

a18. Illustrate the cardiac risk factors, clinical predictors of peri-operative cardiovascular risk. Perioperative management of hypertension, ischemia, CHF, valvular disease.
a19. Define the cardiopulmonary bypass. Illustrate the basic circuit, anesthetic management for cardiopulmonary bypass, pericardial diseases; tamponade, constrictive pericarditis.
a20. Define the basic mechanism of breathing, effect of spontaneous & mechanical ventilation, mechanics of ventilation, effect of anesthesia on pulmonary mechanics, ventilation–perfusion ship, and effect of anesthesia on gas exchange.
a21. Illustrate the impact of anesthesia for patient with respiratory disease e.g. obstructive and restrictive pulmonary disease, pulmonary risk factor, changes with laparoscopic surgery.
a22. Define the anesthesia for thoracic surgery, effect of posture on lung mechanics. Illustrate one long ventilation, anesthetic management for lung resection, cyst, abscess, broncho-pleural fistula, bronchoscopy, esophageal surgery.
a23. Mention neurophysiology; regulation of the cerebral blood flow, CSF, intracranial pressure, effect of the anesthetic agent on cerebral physiology & cerebral monitoring. Brain protection strategy.
a24. Mention the anesthetic management for craniotomy, post fossa tumors, head trauma, spine surgery.
a25. Illustrate anesthesia for patient with neurologic and psychiatric disease, cerebrovascular disease, seizures, Parkinsonism, patient with antidepressant and electroconvulsive therapy.
a26. Mention etiology of electrolyte disturbance (e.g. hyper &hyponatremia, hyper & hypokalemia…), how to diagnose it and anesthetic management.
a27. Mention the fluid management, evaluation of intravascular volume, perioperative fluid therapy and blood transfusion.
a28. Illustrate anesthesia for patient with blood disease (e.g. thalassemia, sickle cell anemia…).
a29. Mention physiology of acid –base balance, its compensatory mechanisms, types, disorders, diagnosis and anesthetic consideration.
a30. Illustrate renal physiology and effect of anesthesia on the renal function. Anesthetic management of patient with renal disease, TURP syndrome.
a31. Illustrate hepatic physiology and effect of anesthesia on the hepatic function. Anesthetic management of patient with liver disease & coagulopathy.
a32. Illustrate anesthesia for patient with endocrine disease; Diabetes mellitus, hypo & hyperthyroidism, parathyroid disorders, adrenal gland disorders, and anesthetic management of obesity.
a33. Illustrate anesthesia for patient with neuromuscular disease; myasthenia gravis, myathenic syndrome, muscular dystrophies, and myotonia.
a34. Define anesthesia for Ophthalmic surgery, effect of anesthetic agent on the intraocular pressure.
a35. Define anesthesia for Otorhinolaryngologicl surgery, Anesthetic management for endoscopy, sinus surgery, ear surgery and head and cancer surgery.
a36. Define anesthesia for orthopedic surgery, hip surgery, knee surgery. Illustrate special consideration to bone cement, pneumatic tourniquet, fat embolism syndrome, deep venous thrombosis and upper extremity surgery.

a37. Define the management of the trauma patient; initial assessment, anesthetic considerations; head, spinal cord, chest, abdominal, extremity trauma and burn patient.

a38. Define maternal physiology during pregnancy and the placental transfer of anesthetic agents, their effect on utero-placental transfer

a39. Define the anesthetic risk in obstetric patient, anesthesia for labor, vaginal deliveries, anesthesia for cesarean section and complicated pregnancy. Anesthetic management of pregnancy induced hypertension and pregnancy with medical or surgical diseases.

a40. Define pediatric anesthetic techniques, anesthetic risk, anatomic and physiological development and effect of anesthetics, pathophysiology & anesthetic considerations in specific pediatric disorders; prematurity, intestinal malrotation, congenital diaphragmatic hernia, hypertrophic pyloric stenosis, foreign body aspiration, tonsillectomy and malignant hyperthermia.

a41. Define geriatric anesthesia. Age related anatomic, physiologic, pharmacologic changes and common disease.

a42. Mention anesthetic Complications; factors associated with human errors and equipment misuse, Complications related to position, common documentation pitfalls, occupational hazards.

a43. Demonstrate knowledge of Cardiopulmonary Resuscitation (CPR), define the causes of cardio respiratory arrest. Recognition of patients at risk; Illustrate BASIC LIFE SUPPORT, Universal ALS Algorithm.

**b) Intellectual Skills**

By the end of the course, students should he able to:

b1. Correlate between the medical condition of the patient and the surgery that will be operated and think about the anesthetic plan.

b2. Integrate the effect of anesthetic on the patient intraoperatively and postoperatively.

b3. Idenify the anesthetic problem implied if the patient medically diseased.

b4. Interpret the advantages and disadvantages of different types of anesthesia.

**c) Practical and Professional Skills**

By the end of the course, students should be able to;

c1. Evaluate patient fitness.

c2. Define the appropriate pre anesthetic medication.

c3. Perform air management, difficult intubation efficiently.

c4. Insertion of IV, arterial line and CVP efficiently.

c5. Perform Regional anesthesia (e.g. Spinal, Epidural, Local intravenous anesthesia, preph nerve blocks).

c6. perform cardiopulmonary resuscitation.

c7. ICU management.

**d) General and Transferable Skills**

By the end of the course, students should he able to:

d1. Communicate with each others and interact effectively with patients prepared for surgery for proper evaluation then write a report about the case or discuss with staff members.

d2. Present orally anesthetic plan for the patient in accordance with the standard scientific guidelines in seminars or group meetings, discuss results, defend his/her ideas with staff members. Students can recognize and accept the limitations in their knowledge and clinical skills.

d3. Manipulate computer programs, do web search, to write an essay about patient with medical problems should be prepared for surgery, with trial of solving.
d4. Work together to perform CPR

3- **Contents of the course**

| Topic | No. of hours for lectures | No of Lectures | Practical |
|---|---|---|---|
| Preoperative patient evaluation | 7 | ٢ | ٥ |
| Pre-anesthetic medications | 8 | ٣ | ٥ |
| Patient Monitoring | 9 | ٤ | ٥ |
| Breathing Systems | 9 | ٤ | ٥ |
| Anesthesia machine | 11 | ٦ | ٥ |
| Airway management | 11 | ٥ | 6 |
| Inhalational anesthetics | 9 | ٤ | ٥ |
| Non volatile anesthetics | 9 | ٤ | ٥ |
| Muscle Relaxant | 9 | ٤ | ٥ |
| Cholinesterase Inhibitors | 9 | ٤ | ٥ |
| Anticholinergic drugs. | 9 | ٤ | ٥ |
| Adrenergic Agonists & Antagonists. | 9 | ٤ | ٥ |
| Hypotensive agents | 9 | ٤ | ٥ |
| Local anesthetics | 9 | ٤ | ٥ |
| Regional anesthetics | 12 | ٥ | 7 |
| Cardiovascular physiology and anesthesia. | 13 | ٥ | ٨ |
| Anesthesia for patient with cardiovascular disease. | 13 | ٥ | ٨ |
| Anesthesia for cardiovascular surgery. | 13 | ٥ | ٨ |
| Respiratory physiology and anesthesia. | 17 | 9 | ٨ |
| Anesthesia for patient with respiratory disease. | 13 | ٥ | ٨ |
| Anesthesia for Thoracic surgery. | 13 | ٥ | ٨ |
| Neurophysiology and anesthesia. | 13 | ٥ | ٨ |
| Anesthesia for Neurosurgery. | 13 | ٥ | ٨ |
| Anesthesia for patient with Neurologic and Psychiatric disease. | 10 | 2 | ٨ |
| Fluid management & Transfusion. | 13 | ٥ | ٨ |

| | | | |
|---|---|---|---|
| Management of patient with electrolyte disturbance. | 13 | ٥ | ٨ |
| Acid-Base Balance. | 13 | ٥ | ٨ |
| Renal physiology and anesthesia. | 13 | ٥ | ٨ |
| Anesthesia for patient with Renal disease. | 13 | ٥ | ٨ |
| Anesthesia for Genitourinary surgery. | 13 | ٥ | ٨ |
| Hepatic physiology and anesthesia. | 8 | ٣ | ٥ |
| Anesthesia for patient with liver disease. | 10 | ٥ | ٥ |
| Anesthesia for patient with Endocrine disease. | 7 | ٢ | ٥ |
| Anesthesia for patient with Neuro muscular disease. | 7 | ٢ | ٥ |
| Anesthesia for Ophthalmic surgery. | 7 | ٢ | ٥ |
| Anesthesia for Otorhinolaryngologicl surgery. | 10 | ٥ | ٥ |
| Anesthesia for Orthopedic surgery. | 10 | ٥ | ٥ |
| Anesthesia for the Trauma Patient. | 13 | ٥ | ٨ |
| Maternal & Fetal physiology and anesthesia | 9 | 4 | ٥ |
| Obstetric Anesthesia. | 13 | ٥ | ٨ |
| Pediatric Anesthesia. | 10 | ٥ | ٥ |
| Geriatric Anesthesia. | 7 | ٢ | ٥ |
| Outpatient Anesthesia. | 7 | ٢ | ٥ |
| Anesthetic Complications. | 10 | ٥ | ٥ |
| Cardiopulmonary Resuscitation. | 13 | ٥ | ٨ |
| Pain Management. | 17 | 12 | ٥ |
| Post anesthesia care. | 10 | ٥ | ٥ |
| Critical Care. | 23 | 15 | ٨ |
| **Total** | **525** | **٢٢٥** | **٣٠٠** |
| **Credit** | **25** | **15** | **10** |

**Clinical course**

| Topic |
|---|
| Perform an anesthetic plan for the cases in the list |
| Evaluate patient fitness |
| Define the appropriate pre anesthetic medication. |
| Perform air management, difficult intubation efficiently. |
| Insertion of IV, arterial line and CVP efficiently. |
| Perform Regional anesthesia |
| Perform Regional anesthesia (e.g. Spinal, Epidural, Local intravenous anesthesia, preph nerve blocks) |
| Perform cardiopulmonary resuscitation. |
| ICU management |

**Anesthesia Course Specifications 2008-2009**

4. **Teaching and learning methods**

    1. Lectures.
    2. Practical sessions.
    3. Operative theater work.
    4. Application of anesthetic plan under observation.
    5. Thesis submitted for fulfillment of master Degree

**5. Students Assessment Methods**

| Method of assessment | The assessed ILOs |
|---|---|
| 5.1- Observation of attendance and absenteeism. | - General transferable skills, intellectual skills |
| 5.2- Log book | - General transferable skills |
| 5.3-Written Exam:<br>-Short essay: 40%<br>-structured questions: 25%<br>-MCQs: 20%<br>-Commentary, Problem solving: 15% | <br>- Knowledge<br>- Knowledge<br>- Knowledge, intellectual skills<br>- Intellectual skills, General transferable skills, |
| 5.4-Structured Oral Exam | - Knowledge, Intellectual skills, General transferable skills |

**Assessment Schedule**

**Assessment 1:** Final written exam.

**Assessment2;** Final Structured Oral Exam.

**Assessment 3:** Evaluation of the research & Thesis work

**Weighting of assessment**

| | |
|---|---|
| Final written exam | 50% |
| Final Structured Oral Exam | 50% |
| **Total** | **100%** |

## 6. List of References

1. Essential Books:
   Morgan G.E, Mikhail M and Murry M., (2011): Clinical anesthesiology, 6th edition, McGraw-Hill Companies, UK, and USA.
2. Recommended Books:
   Miller R.D., Cucchiara RF et al, (2015): Anesthesia, 8th edition.
3. Periodicals and websites:
   British Journal of Anesthesia, Anesth. Analg journal, Anesthesiology journal, Acta anaesthesiol Scand, Eur journal Anaesethesiol.
   www.sciencedirect.com

## 7. Facilities required for teaching and learning

1. Appropriate teaching aids (photographs, anesthetic drug ampoules or vials, laryngoscope, mask, oral &nasal airway, endotracheal tube, ampu bag, Laryngeal airway, double lumen tube ,canula, different fluid solutions, spinal & epidural needle, monitors, anesthesia machine, ventilators, syringe pump, PCA set).
2. Facilities for field work: Operative List, ICU work.
3. Computers with net connection.
4. Data Show and overhead projectors.

**Course Coordinator:** Dr. Aiman Abd-Elkareem

**Head of Department**: Prof. Dr. Abd El-Rahman Hassan

**Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013, Revised:1/12/2018**