

**The Teaching Plan**  
**For**  
**High Specialization Certificate**  
**In**  
**Anesthesia and Intensive Care**  
**Faculty of Higher Education**  
**Jordan University**

*Last updated October 2013*

### ***General Description***

This Program is run by the department of Anesthesia and Intensive Care at the Faculty of Medicine-JORDAN UNIVERSITY and takes place in the Department of Anesthesia and intensive care at Jordan University Hospital. The Education Committee of the program is composed of the department director and all teaching staff members in the department. One staff member is assigned the role of supervising the program. The program scope covers all areas of interest in the specialty field and the education committee is responsible for curriculum development and regular evaluation and updating.

### ***Criteria of Admission to the program***

Students applying to join the program should fulfill the following criteria:

1. A Recognized medical school Certification
2. Successfully passing the Internship Examination of medical doctors or equivalent.
3. Successfully passing the general admission competition examination
4. Undergoing a health assessment medical examination by the health committee at Jordan University Hospital .
5. Payment of required fees.

### ***Duration of program***

Four academic years

### ***Aim of program***

To train and teach postgraduate medical students who join the program the necessary knowledge, skills, and attitudes that are fundamental to the practice of Anesthesia and Intensive Care, and to make them eligible for the Jordanian Medical Council and Arab Board Examinations in the Specialty.

*This will be through working hard to ensure that students will learn to:*

- ✓ Deal with and manage patients presenting for different surgical procedures requiring Anesthetic Care.
- ✓ Manage patients in the intensive Care Unit on a multidisciplinary basis. Apply proper Documentation and Communication Skills.
- ✓ Develop professional values, attitudes and behaviours.
- ✓ Develop Understanding of basic principles in clinical research and participating in current research in the department.

## ***Objectives***

The following objectives are defined upon successful completion of the program that will culminate in the attainment of "Higher Specialization Certificate" in Anesthesia and Intensive Care:

The student will be able to:

- 1- Perform a thorough pre-operative assessment and evaluation of patients that include history taking, clinical examination, and review of old files and investigations this will ensure the following sub-objectives:
  - a. Estimating the risk of undergoing Anesthesia according to international standards.
  - b. Discussing the risk with surgeon and patient and obtaining an "Informed Consent"
  - c. Ordering any necessary additional investigations.
  - d. Asking for necessary Consultations from other medical specialties.
  - e. Prescribing necessary pre-medication.
  - f. Doing proper counseling to patient and family.
  - g. Setting up a proper and clear plan of the contemplated Anesthesia.
- 2- Acquire an advanced familiarity with Anesthetic drugs and Equipment (Both theory and practice)
- 3- Acquire an advanced familiarity with different Anesthetic techniques (in both theory and practice)
- 4- Acquire advanced familiarity with Monitoring required during anesthesia (Basic, advanced, Non-invasive, and invasive monitoring)
- 5- Mastering good quality peri-operative medical care
- 6- Acquire good knowledge and practice of post-anesthesia care Unit principles.
- 7- Acquire good knowledge and practice of post-operative pain Management.
- 8- Learning the principles of practice of Acute and chronic pain management.
- 9- Learning the principles of crisis management in Anesthesia.
- 10- Learning the principles and acquiring practice of critical care management that cover:
  - A. Criteria of admission to the ICU.
  - B. Priorities and economics of Intensive Care.
  - C. Transfer of the critically ill patient.
  - D. Multi-disciplinary care principles of patients admitted to the intensive care Unit.
  - E. Documentation, Communication, and family counseling skills.
  - F. Discharging Criteria of ICU patients.
  - G. Diagnosis of Brain Death.
  - H. Principles of Organ Donation.

11- Acquiring good practice and Mastering of the following procedures:

- a. Intravenous insertion of peripheral and central lines
- b. Basic and Advanced Airway management skills.
- c. Basic and Advanced life support
- d. Peripheral nerve blocks: regional Anesthesia
- e. Central nerve blocks: spinal , Epidural, Para-vertebral
- f. Principles of Fiber-optic Bronchoscopy
- g. Intra-arterial line insertion.

### ***Syllabus***

The Syllabus of the program includes both Basic and clinical medical sciences that cover all aspects of medicine necessary for the practice of Anesthesia and intensive care with emphasis on their relation to the practice.

1. ***Basic Sciences:***

- 1) Anatomy
- 2) Physiology
- 3) Pharmacology
- 4) Biochemistry
- 5) Statistics
- 6) Physics

1. ***Clinical Sciences***

- A. Medicine: with focus on critical management of medical conditions in different disciplines of medicine. Also, principles of disease control and drug interactions during Anesthesia.
- B. Surgery:
  - A. Perioperative medical management of surgical patient and its impact on the conduct of Anesthesia.
  - B. Understanding the gross details of the surgical procedure and their reflection on anesthetic plan and flow during surgery: These include
    1. General Surgery
    2. Orthopedic Surgery
    3. Uro-surgery
    4. ENT surgery
    5. Obstetric and Gynecologic Surgery
    6. Neuro-surgery
    7. Ophthalmic surgery
    8. Thoracic and cardiac surgery

## 9. Pediatric Surgery

- C. Pediatrics: highlighting the fact that pediatric patients have special management plans and not simply "Small sized adults".
- D. Obstetrics and Gynecology: Physiological changes related to pregnancy and labour, principles of obstetric anesthesia and labour pain Management
- E. Principles of trauma and Emergency Medicine management.
- F. Principles of Radiology in relation to Anesthesia.

### **Methods of Teaching and Training**

1. Lectures
2. Seminars
3. Journal Clubs
4. Case Presentations
5. Morbidity and Mortality discussions
6. Daily Morning Report meetings
7. Hands on practical training in the operating theatre through daily operating lists
8. Intensive Care management rounds and discussions
9. Joint meetings and seminars with other department about issues of common interest
10. Use of the faculty multipurpose simulation Lab.
11. Internet and on-line University subscription to international journals and Data Bases in the field of Anesthesia and intensive care.
12. Participation in national scientific meetings, conferences and workshops of interest.

### ***Teaching facilities***

1. A Seminar Room equipped with:
  - a. Overhead projector.
  - b. Desktop computer with internet connection
  - c. DATA show set
  - d. Department Library
2. Hospital and University Libraries
3. Faculty simulation Lab
4. Operating theatre facilities

### **Evaluation of Students**

- ❖ The evaluation system of students in the program provides assessment and measurement of the student's performance throughout the Academic year.
  - ✓ It is carried out yearly by each teaching staff member for each student
  - ✓ The final evaluation Mark is Calculated by taking the average of all staff members' evaluations for each student.
  
- ❖ Evaluation Covers the following aspects of the student's performance:
  1. Cumulative Knowledge: both theoretical and practical and progress of knowledge accumulation.
  2. Clinical skills and Judgment
  3. Procedural skills and competency.
  4. Communication skills
  5. Documentation of management details.
  6. Commitment, attendance and attitude.

### **Final Examination**

- Carried out at the end of each Academic year.
- Each training level have an examination that correspond to that level's cumulative knowledge and training.

#### ***The Examination is divided into:***

- A. **Written part:** composed of 100 multiple choice questions for each training year level: the mark is the number of correct answers out of 100.
- B. **Practical part:** Divided into 4 parts:
- C. **Long case exam**
- D. **Oral exam :** short cases discussions.
- E. **Equipment exam**
- F. **Investigations exam:** interpretation of investigations.

- ❖ Each exam committee will give the student a mark out of 100% according to a consensus among its members on the student performance.

### **Grading system and final results**

- The final yearly result for each student is determined out of 100%.
- It is calculated by adding the students Marks of Evaluation, Written exam and Clinical exam part together after conversion of each grade to its percentage weight of the final result according to the following weighting system:

Evaluation		30%
Written exam		40%
Clinical	Long case	10%
	Short case	10%
Oral	Equipment	5%
	Investigation	5%
Total		100%

- The written exam answer sheets are checked in one setting by all teaching staff members.
- Each answer sheet is checked twice and the correct answers are counted by two staff members.
- Calculation the final results is carried out in the same setting and double checked.
- A letter system is applied to the final results according to university rules after consensus agreement by all staff members.
- Results are then sent to the faculty of Higher education for final approval.

# **The Teaching Plan**

**For**

## **High Specialization Certificate In Anesthesia and Intensive Care**

**Faculty of Higher Education**

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*A detailed description by year/ level  
of training*

**Last updated October 2013**



# First Year

## *Objectives:*

By the end of this Training year, the student is expected to be able to:

- 1) Carry out proper pre-operative medical evaluation of patients presenting for Anesthesia.
- 2) Be familiar with the operating theatre environment, drugs, and equipment
- 3) Be able to:
  - a. Establish patient Monitoring before induction of Anesthesia.
  - b. Secure a peripheral venous access
  - c. Prepare necessary drugs.
  - d. Do proper anesthesia machine check.
- 4) Learn Airway management skills.
- 5) Learn basic & advanced life support skills.
- 6) Provide anesthetic care for simple surgeries for ASA I risk class patients (e.g. D&C)
- 7) Provide post anesthesia care unit management and discharge under supervision.

## **Roles and duties of first year student:**

### *Pre-operative Visit:*

The student should participate in the pre-operative assessment of patients under supervision from senior on call students. The student should take good clinical history and carry out good clinical examination, do good review of investigations and old files of patients. The student should report his findings to the senior student in charge and discuss with him/her the pre-operative plan.

### *Morning Report:*

The student should report to the staff person in charge the elective cases that he/she assessed during the pre-operative visit and discuss the medical problems, medications and anesthesia plans.

### *Operating theatre work*

- Student should spend 8 sessions a week in the operating room where he/she is introduced to the operating theatre protocols of (sterility, drug handling, equipment and gas supply etc.)
- Students are expected to participate in drug preparation, Equipment

checkups, patient final review , monitoring establishment and learn technical skills of intra-venous line insertion and airway management

- They are also required to participate in the conduct of Anesthesia according to instructions from their seniors.

### ***Emergency (on-call)***

- The 1st year student is required to do at least 3 on calls each week, starting from 5.00 pm until 8.00 AM next morning. His /her first role is to take part in the pre-operative Assessment of patients scheduled for elective surgery next day under supervision. He is expected to do that for at least one hour each day.
- The student is expected to take part in all activities during the on- call as assigned by his seniors and under their supervision e.g. Emergency Anesthesia and Cardio-pulmonary resuscitation.

### ***Teaching Activities:***

- The student is required to prepare at least 4 basic science presentations each semester (Anatomy, Physiology and pharmacology), Supervised by the assigned teaching staff member.
- The student is required to prepare at least two clinical presentations each semester pertaining to Anesthesia for simple general surgery.
- The student should also present at least two journal reviews during the year in simple clinical Anesthesia subjects.
- The student is expected to attend all teaching activities in the department

### ***Rotation in Medicine***

- The student is expected to spend a 3-6 month rotation in the department of Medicine at Jordan University hospital, divided mainly into cardiology and Respiratory divisions. Arrangements will be made between departments for this purpose.

## **Second Year**

### ***Objectives:***

By the end of the 2nd year of training, the student is expected to:

- 1) Further establish the objectives in the first year
- 2) Be able to deal with more difficult cases in Anesthetic management for general surgery including ASA risk class I&II.
- 3) Master good knowledge of physics related to the use of Anesthesia equipment.
- 4) Acquire knowledge and practice in the intensive care unit as a junior doctor.
- 5) Provide teaching assistance for first year students

### ***Student role and duties in the 2nd training year***

#### ***Morning Report:***

The same as for first year students, but at a higher responsibility level of reporting (i.e. more comprehensive elaboration on cases).

#### ***Pre-operative visit***

- Participating in pre-operative patient assessment supervised by senior students.
- Providing assistance and guidance to first year students.

#### ***Operating theatre work***

- Having the same role and duties as first year student but at a higher competency level.
- Conducting Anesthetic Care for ASA-I risk class patients in general and orthopedic surgery and gynecologic surgery including mild to moderately invasive procedures.
- Be introduced to Anesthesia for ASAII risk class patients.
- Be introduced to the principles of Anesthesia in Obstetrics (e.g. Caesarian section)
- Acquire good knowledge and practice of sedation techniques.
- Be introduced to the concept of total intravenous Anesthesia.

- Provide assistance and guidance to first year student.

### ***Emergency (on-call)***

- The 2nd year student is required to do at least 2 hospital based on-calls each week starting at 5.00 pm until 8.00 am next morning.
- The student is required to participate in pre-operative Assessment of patients scheduled for elective surgery next day and provide assistance and guidance to first year students in this regard.
- They are required to provide anesthesia care for Emergency cases for ASA I + II risk class patients presenting for mild to moderately invasive surgery under supervision from seniors.
- They are required to provide help and Assistance to more senior students during Anesthesia for more risky patients.

### ***Teaching Activities***

- The 2nd year student is required to present at least 4 lectures in basic sciences that include physiology, Anatomy, pharmacology, and physics during each semester, supervised by the assigned teaching staff member.
- They are required to present at least two presentations in clinical Anesthesia and intensive care during each semester.
- They are required to present a review of at least 10 updated articles in current Anesthesia literature on topics assigned by the supervising staff member.
- Should attend all teaching activities in the department

### ***Intensive care Unit***

- The student has to spend 3-4 months in the intensive care unit working as a junior doctor in the 2nd year. He/she is supervised by a 4th year student and both are supervised by the assigned ICU staff member.
- During the ICU rotation the student is responsible for admission, care and discharge of patients according to instructions by seniors.
- The student is required to attend and present cases during the daily clinical rounds in the ICU by senior student.
- The student is required to provide continuous feedback communication to his seniors regarding the progress of patients conditions.
- The student is required to attend grand rounds and discussions held in the ICU.
- The student is required to prepare at least 4 case presentations in related intensive care topics.
- Be part of the hospital cardiopulmonary resuscitation team.

## ***Research***

- ❖ The student will be assigned a research project in the second semester. The aim is to introduce students to the principles of clinical research in Anesthesia and Intensive care. This includes planning, designing, collecting data, managing results, and drawing conclusions. They are taught by supervising staff how to report their research in a quality paper that may lead to its publication in a recognized Anesthesia journal.

## **Third year**

### ***Objectives:***

#### **By the end of this year, the student is expected to:**

- Show Further Mastering of the objectives of the previous two years. Deal with cases of higher risk status ASA-III and be introduced to ASA-IV risky class patients' management.
- Be able to deal with and manage more complicated subspecialty Anesthesia: Neurosurgery ENT surgery, ophthalmic surgery and Uro- surgery.
- Be introduced to Anesthesia in peripheral areas e.g. dental surgery.
- Be introduced and to gain training in Regional and central block anesthesia.
- Be introduced to and have adequate training in invasive monitoring.

### ***Student role and duties during the 3rd training Year***

#### ***Morning Report***

- The student is expected to give a more expert elaboration during the reporting of cases, seen during the pre-operative assessment.
- Report the details of emergency cases anesthetized during the on-call.
- Be able to replace the 4th year resident in running the morning Report if not able to attend.

#### ***Pre-operative Visit***

- The 3rd year student is required to provide supervision and assistance to junior students during the pre-operative assessment of patients.
- Should ensure that communication with the surgical team about pre-operative plan is well-conducted.
- Provide necessary feed back to the senior student in charge of the on-call.

#### ***Operating theatre work***

- The 3rd year student is expected to provide Anesthesia care for patients of high risk index ASAIII and be introduced to ASAIII risk class Anesthesia under supervision by senior.
- Should be involved in Anesthesia for more complicated subspecialty surgeries: ENT, ophthalmic, Neurosurgery and Urosurgery, Geriatric

cases.

- Be introduced to the principles of thoracic Anesthesia.
- Should be introduced to and trained in carrying out central Nerve blocks: spinal, Epidural, and Caudal Anesthesia.
- Should be introduced to the principles of and have training in regional anesthesia.

### ***Emergency (on Call)***

- Should do at least 6-8 on calls per month.
- The same as for previous years but with expanded role that will also include subspecialty surgical procedures mentioned above and more complicated cases.
- Replace the senior resident in charge in running the on-call routine issues when the former is busy.
- Provide assistance and guidance to junior students.

### ***Teaching Activities***

- The student should attend all teaching Activities held in the department.
- Should prepare at least 4 presentations each semester in different basic and clinical issues with focus on subspecialty Anesthesia.
- Should prepare and present at least 3 presentations each semester on major subjects in clinical Medicine in relation to Anesthesia in cooperation with relative medical subspecialty staff.
- Current journal review and journal club as in 2nd year.
- Should review complications and deaths of relation to Anesthesia and prepare presentations of Morbidity and Mortality addressing risk factors, objective management, clinical criticism, and preventive measures that could be carried out. And should be able to draw conclusions regarding recommendations of management for future similar cases.

### ***Intensive Care:***

- Students are encouraged to attend any major teaching activities held in the ICU (e.g. grand rounds)

### ***Research***

- Further training in principles of research and participation in current research projects in the department.

## **Fourth Year**

### ***Objectives:***

- By the end of the 4th training year, the student is expected to:
- Further establish the objectives in previous training years.
- Have adequate training in pediatric Anesthesia.

- Have adequate training in thoracic Anesthesia including single lung ventilation.
- Have adequate training in cardiac surgery Anesthesia including principles of cardiopulmonary bypass.
- Have good training in fiber-optic bronchoscopy.
- Have mastered a senior doctor role in Anesthesia and intensive care.
- Have developed the necessary knowledge and practice required for qualifying as a specialist in Anesthesia and intensive care.
- Be eligible for the Anesthesia Board examinations held by the Jordanian medical council and Arab Board committee.

***Student will be granted the certificate of higher specialization in Anesthesia and intensive care upon successful passing of the final exams in the department.***

#### ***Roles and duties of 4th year student***

##### ***Morning Report:***

- The fourth year student is responsible for Reporting the on call activities to the department staff member in charge, assigning reporting roles to different on-call team members.
- He/she should ensure that all on-call team members attend the morning Report, and make sure the availability of information if any team member is busy or not attending.

##### ***Pre-Operative assessment***

- The 4th year student is expected to provide supervision, advice, and guidance to junior students regarding the pre-Operative assessment and plan.
- He/she is required to do assessment of patients in complicated cases with difficult clinical scenarios.
- The student is responsible for communication with teaching staff members responsible for anesthetizing the patient in complicated cases.
- The student should be able to do Anesthesia consultations in communication with teaching staff member.

##### ***Operating theatre:***

- The 4th year student is introduced to anesthesia for pediatric, thoracic & cardiac surgeries and be involved in their conduct and have adequate training.
- He/she is assumed to be able to run the surgical list Anesthesia without the physical presence of teaching staff member, except in exceptionally difficult cases.



- He/she is expected to assume a teaching role for Junior students in the team.
- He/she is responsible for ensuring proper equipment and drug check list before the start of the surgical list.

### ***Emergency (on-call)***

- The student has to do 4-6 on-call per month as a senior Resident in charge.
- The student supervises junior students & do proper work distribution among team members.
- Has to provide advice, help & supervision to Junior students.
- Conduct anesthesia for risky, complicated cases at the same time providing teaching for Junior student in the theatre.
- Ensuring Intra- and extra-specialty communication.
- Deal with rising administrative issues during the on-call under communication with director of department.
- Run the Epidural service for obstetric labor pain relief.

### ***Teaching Activities***

The student should:

- Attend all teaching Activities in the department.
- Prepare and present at least 4 presentations each semester about subjects relating to complicated surgeries and risky anesthesia in pediatric, cardiac, thoracic branches.
- Present at least 4 journal clubs and literature review.

### ***Intensive Care Unit work***

- The student has to spend 2 month rotation in the ICU as a senior resident.
- He is expected to provide guidance, supervision, teaching and help to junior student regarding ICU management.
- Should prepare and carry out at least 4 presentations of selected ICU Topics and case presentations.
- Ensure good communication with the teaching staff member running the ICU.

### ***Chronic pain Management***

- Student is expected to spend at least one session per week in chronic pain clinic and attend related procedures and prepare topic presentations on pain management.

### ***Research***

- Student is expected to further his practice in conducting Research. Be able to present Research in the department at national meetings and conferences.