The Hashemite University
Faculty of Allied Health Sciences
Department of Medical Imaging
Course Syllabus

Course information	
Course Title	Quality Control of Radiological Images
Course Code	110508312
Prerequisites	110508211
Credit Hours	3 (2+3) hours

Course Description
This course introduces the student to the principles of radiographic techniqueswhich producing the best diagnostic image quality. Therefore, Quality control is the use of diagnostictools to detect trends that will eventuallycause repeated exposures to the patient,and correct them before such unnecessaryexposures come about. By definition, then,QC plays a vital role in minimizing patientexposure.

Course Objectives

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

1. Describe the visibility and recognisability of radiographic quality
2. Identify contrast, gray scale and resolution
3. Give two reasons why mAs should beconsidered as the primary control forimage density
4. Define optimumkVp
5. Explain the difference between gridratio and grid radius
6. List the methods by which scatterradiation can be reduced or eliminated after it has been produced
7. Explain the most effective way for the individualradiographer to minimize patient exposure
8. Describe the effect of off-centering and beam divergence on radiographic quality.

Recommended Textbook	
Title	Fuchs's Radiographic Exposure and Quality Control
Author	Quinn Carroll
Publisher	Charles Thomas publisher, Ltd
Year	2003
Edition	7th, Ed
Book website	
Other References	
Title	An Analysis of Radiographic Quality
Author	Daniel Donohue
Publisher	Lippincott Williams and Wilkins
Year	1995
Edition	3rd Ed

Title	Essential of Diagnostic Imaging
Author	Guebert,
Publisher	Mosby, Inc
Year	1995,
Edition	1st, Ed
websites	
Website	
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Course Contents

Chapter 1: **QUALITY OF RADIOGRAPHIC IMAGE**

- Quality Assurance QA and Quality Control QC
- Objectives of QA Program
- Visibility
- Recognizability
- Qualities of the radiographic

Chapter 2: **X-RAY TUBE/VISIBILITY FACTORS**

- ❖ Milliambere-second (mAs)
  - Control of Density
  - Effect on Contrast
  - Exposure Time and Motion
- ❖ Kilo-voltage-Peak kVp
  - Control of contrast
  - Control of Density
  - Exposure latitude
- ❖ Machine Phase and Rectification
  - X-ray quality and quantity
  - Effect on Density
  - Effect on Contrast
- ❖ Beam Filtration
- X-ray quality and quantity
- Compensating Filtration
- ❖ Filed Size Limitation
  - Effect on Density
  - Effect on Contrast

Chapter 3: **X-RAY INTERACTION/ VISIBILITY FACTORS**

- Effect of Scatter radiation on Density and Contrast
- Fog versus Blur
- Scatter and Radiation Exposure
- Effect of Grid on Contrast
- Grid Efficiency
- Grid Cut-off
- Intensifying Screen

Chapter 4: **GEOMETRICAL FACTORS**

- Focal spot size
- The anode bevel
- Source image receptor distance
- Object-image receptor distance
- Distance ratio
- Geometric function of positioning

Chapter 5: **EXPOSURE CONTROL**

- Milliampere-seconds (mAs)
- Kilovoltage-Peak (kVp)
- Filtration
- Field size limit
- Grids and Cassettes
- Distance

Assessment	
First Exam	20
Second Exam	20
Final Exam	20
Lab + In course assessment	40