

# RADIOGRAPHY (RADIOGR)

## **Radiography (RADIOGR) 101**

### **Intro To Radiation Sciences**

Fundamental concepts of medical imaging and the radiation sciences; includes origins of the profession, common terminology and chemicals; technical factors influencing development of the radiograph and technical factors which produce the image. Writing assignments, as appropriate to the discipline, are part of the course.

*Admission into the Radiography program/plan 246.*

2 Laboratory hours. 1 Lecture hours. 2 Credit Hours.

**Offered At:** MX

## **Radiography (RADIOGR) 102**

### **Attitudes In Patient Care**

Skills needed for proper patient care; includes physical and psychological skills necessary to cope with various situations. Writing assignments, as appropriate to the discipline, are part of the course.

*Admission into the Radiography program/plan 246.*

2 Lecture hours. 2 Credit Hours.

**Offered At:** MX

## **Radiography (RADIOGR) 105**

### **Imaging Physics**

Structure of matter, electric circuitry, especially the x-ray circuit, interactions between ionizing radiation and matter and principles necessary for production of radiographic image. Writing assignments, as appropriate to the discipline, are part of the course.

*Grade of C or better in RADIOGR 101.*

4 Lecture hours. 4 Credit Hours.

**Offered At:** MX

## **Radiography (RADIOGR) 115**

### **Basic Prins Of Image Produc**

Analysis of various technical factors and accessories which affect radiographic image; includes basic qualitative factors of image production, and laboratory experiments. Writing assignments, as appropriate to the discipline, are part of the course.

*Admission into the Radiologic Program*

2 Laboratory hours. 2 Lecture hours. 3 Credit Hours.

**Offered At:** MX

## **Radiography (RADIOGR) 124**

### **Intro To Patient Care**

Proper positioning and basic nursing procedures necessary for patient care; includes proper placement and manipulation of patient and equipment. Writing assignments, as appropriate to the discipline, are part of the course.

*Admission into the Radiography program/plan 246.*

2 Laboratory hours. 1 Lecture hours. 2 Credit Hours.

**Offered At:** MX

## **Radiography (RADIOGR) 128**

### **Image Evaluation**

Analysis of image and quality of radiographs images submitted for interpretation; covers patients size, cooperation and pathological condition relative to and influencing accuracy and quality of resultant image. Writing assignments, as appropriate to the discipline, are part of the course.

*Grade of C or better in RADIOGR 101.*

1 Lecture hours. 1 Credit Hours.

**Offered At:** MX

## **Radiography (RADIOGR) 131**

### **Radiographic Procedures I**

Proper positioning of patient for demonstration of suspect pathology of abdomen and its contents, correlated with course in anatomy and physiology, and routine and contrast media procedures. Writing assignments, as appropriate to the discipline, are part of the course.

*Grade of C or better in RADIOGR 101.*

2 Laboratory hours. 1 Lecture hours. 2 Credit Hours.

**Offered At:** MX

## **Radiography (RADIOGR) 140**

### **Intro To Clinical Education**

Physical and technical skills needed to apply ionizing radiation to human beings; clinical orientation and assessment to determine professional preparedness. Writing assignments, as appropriate to the discipline, are part of the course.

*Grade of C or better in RADIOGR 101.*

20 Laboratory hours. 1 Lecture hours. 3 Credit Hours.

**Offered At:** MX

## **Radiography (RADIOGR) 141**

### **Radiography Clinical Education I**

Orientation and initial skills development in basic radiographic procedures; visualization of abdomen and its contents stressed to prepare student for further study in major area of specialization; includes communication, operation of equipment, patient care and technical skills development. Writing assignments, as appropriate to the discipline, are part of the course.

*Grade of C or better in RADIOGR 101.*

20 Laboratory hours. 1 Lecture hours. 3 Credit Hours.

**Offered At:** MX

## **Radiography (RADIOGR) 200**

### **Pathology**

Covers disease process with radiographic manifestations; laboratory sessions include use of radiographs and images from other modalities to visualize various types of pathologic conditions. Writing assignments, as appropriate to the discipline, are part of the course.

*Grade of C or better in RADIOGR 101.*

4 Lecture hours. 4 Credit Hours.

**Offered At:** MX

## **Radiography (RADIOGR) 202**

### **Radiology Management**

Administration, purchasing and personnel control; practical experience in department administration. Writing assignments, as appropriate to the discipline, are part of the course.

*Grade of C or better in RADIOGR 101.*

1 Lecture hours. 1 Credit Hours.

**Offered At:** MX

## **Radiography (RADIOGR) 205**

### **Applied Radiographic Techniques**

Practical applications of previously learned concepts; effects of technical factor selection, use of accessories and changes in patient type and condition. Writing assignments, as appropriate to the discipline, are part of the course.

*Grade of C or better in RADIOGR 101.*

2 Laboratory hours. 2 Lecture hours. 3 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 206**

**Imaging**

The components of radiological imaging system chains; imaging systems will be explored, including current systems and new and emerging modalities. Writing assignments, as appropriate to the discipline, are part of the course.

*Grade of C or better in RADIOGR 101.*

2 Lecture hours. 2 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 208**

**Radiobiology**

Effects of radiation on cells, organs, and organisms and implications on present and future populations, use of ionizing radiation in internal and external treatment of benign and malignant disease. Writing assignments, as appropriate to the discipline, are part of the course.

*Grade of C or better in RADIOGR 101.*

2 Laboratory hours. 2 Lecture hours. 3 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 232**

**Radiographic Procedures II**

Positioning and patient-care skills applied to additional body systems and correlated with clinical study; proper positioning of patient for demonstration of suspect pathology correlated with previous procedures; includes skeletal and urinary systems. Writing assignments, as appropriate to the discipline, are part of the course.

*Grade of C or better in RADIOGR 101.*

2 Laboratory hours. 3 Lecture hours. 4 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 233**

**Radiographic Procedures III**

Study of additional body systems; includes procedures less frequently performed and those requiring special skills or equipment; procedures covered will not normally require invasive techniques. Writing assignments, as appropriate to the discipline, are part of the course.

*Grade of C or better in RADIOGR 101.*

2 Laboratory hours. 3 Lecture hours. 4 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 234**

**Special Radiographic Procedure**

Procedures frequently performed in modern department but which employ surgical or other invasive techniques and injection of contrast media into circulatory system; covers emergency procedures and pertinent aspects of some pharmaceuticals. Writing assignments, as appropriate to the discipline, are part of the course.

*Grade of C or better in RADIOGR 101.*

2 Lecture hours. 2 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 242**

**Radiography Clinical Ed II**

Application of concepts learned in related radiography classes; emphasis on progression from role of observer to assistant, then to relative independence under supervision of qualified clinical instructors, radiographers and faculty. Writing assignments, as appropriate to the discipline, are part of the course.

*Grade of C or better in RADIOGR 101.*

30 Laboratory hours. 1 Lecture hours. 4 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 243**

**Radiography Clinical Education III**

Progression from role of assistant to greater independence under supervision of qualified clinical instructors. Quality and related aspects of special consent will be covered. Writing assignments, as appropriate to the discipline, are part of the course.

*Grade of C or better in RADIOGR 101.*

30 Laboratory hours. 1 Lecture hours. 4 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 244**

**Radiography Clinical Education IV**

Progression of student to full clinical independence, upon demonstrating clinical competency. Student can refine skills through independent practice. Includes field experiences in elective specialization. Writing assignments, as appropriate to the discipline, are part of the course.

*Grade of C or better in RADIOGR 101.*

30 Laboratory hours. 1 Lecture hours. 4 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 252**

**Cross Section Anatomy I**

This course is the first part of sectional anatomy. Content begins with a review of gross anatomy of the entire body. Detailed study of gross anatomical structures will be conducted systematically for location, relationship to other structures and function. Gross anatomical structures are located and identified in axial (transverse), sagittal, coronal and orthogonal (oblique) planes. Illustrations and anatomy images will be compared with MR and CT images in the same imaging planes and at the same level when applicable. The characteristic appearance of each anatomical structure as it appears on CT and MR will be stressed. Writing assignments, as appropriate to the discipline, are part of the course.

*Admittance into the Computed Tomography BC Program*

2 Lecture hours. 2 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 253**

**Cross Section Anatomy II**

This course is the second part of sectional anatomy Content begins with a review of gross anatomy of the entire body. Detailed study of gross anatomical structures will be conducted systematically for location, relationship to other structures and function. Gross anatomical structures are located and identified in axial (transverse), sagittal, coronal and orthogonal (oblique) planes. Illustrations and anatomy images will be compared with MR and CT images in the same imaging planes and at the same level when applicable. The characteristic appearance of each anatomical structure as it appears on CT and MR will be stressed. Writing assignments, as appropriate to the discipline, are part of the course.

*Completion of RADIOGR 252 with a C or higher.*

2 Lecture hours. 2 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 254****CT Principles I**

This course is the first part of Computed Tomography principles. Content is designed to impart an understanding of the physical principles and instrumentation involved in computed tomography. The historical development and evolution of computed tomography is reviewed. Physics topics covered include the characteristics of x-radiation, CT beam attenuation, linear attenuation coefficients, tissue characteristics and Hounsfield numbers application. Data acquisition and manipulation techniques, image reconstruction algorithms such as filtered back-projection and Fourier transform will be explained. Computed tomography systems and operations will be explored with full coverage of radiographic tube configuration, collimator design and function, detector type, characteristics and functions and the CT computer and array processor. CT image processing and display will be examined from data acquisition through post processing and archiving and patient factors related to other elements affecting image quality will be explained, as well as artifact production and reduction. Writing assignments, as appropriate to the discipline, are part of the course.

*Admittance into the Computed Tomography BC Program*

2 Lecture hours. 2 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 255****CT Principles II**

This course is the second part of Computed Tomography principles. Content is designed to impart an understanding of the physical principles and instrumentation involved in computed tomography. The historical development and evolution of computed tomography is reviewed. Physics topics covered include the characteristics of x-radiation, CT beam attenuation, linear attenuation coefficients, tissue characteristics and Hounsfield numbers application. Data acquisition and manipulation techniques, image reconstruction algorithms such as filtered back-projection and Fourier transform will be explained. Computed tomography systems and operations will be explored with full coverage of radiographic tube configuration, collimator design and function, detector type, characteristics and functions and the CT computer and array processor. CT image processing and display will be examined from data acquisition through post processing and archiving and patient factors related to other elements affecting image quality will be explained, as well as artifact production and reduction. Writing assignments, as appropriate to the discipline, are part of the course.

*Completion of RADIOGR 254 with a C or higher.*

2 Lecture hours. 2 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 256****Computed Tomography Clinical Education I**

Orientation and initial skills development in basic computed tomography procedures; through structured, sequential, competency-based clinical assignments, concepts of team practice, patient-centered clinical practice, and professional development are discussed and evaluated. Physical and technical skills utilizing ionizing radiation are applied to procedures performed on patients at the clinical setting. Writing assignments, as appropriate to the discipline, are part of the course.

*Admittance into the Computed Tomography BC Program*

12 Clinical hours. 1 Lecture hours. 4 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 257****Computed Tomography Clinical Education II**

A continuation of RADIOGR 256, the development in computed tomography procedures; through structured, sequential, competency-based clinical assignments, concepts of team practice, patient-centered clinical practice, and professional development are discussed and evaluated. Physical and technical skills utilizing ionizing radiation are applied to procedures performed on patients at the clinical setting. Writing assignments, as appropriate to the discipline, are part of the course.

*Completion of RADIOGR 256 with a C or higher.*

12 Clinical hours. 1 Lecture hours. 4 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 258****CT Patient Care & Radiation Safety**

This course provides the basic concepts of patient care as well as ethical and legal considerations, radiation protection and the responsibilities for protecting patients, public, and personnel, including physical and psychological needs of the patient and family. Basic understanding of the operation of Computed Tomography, routine and emergency care procedures are described. Students review basic concepts of venipuncture, administration of contrast and agents and discuss the appropriate delivery of patient care during contrast procedures. Writing assignments, as appropriate to the discipline, are part of the course.

*Admittance into the Computed Tomography BC Program*

2 Lecture hours. 2 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 261****Patient Care and Pathology**

This course is designed to provide requisite theories and processes related to mammographic manifestations; proper positioning and basic procedures necessary for patient care; includes proper placement and manipulation of patient and equipment. Writing assignments, as appropriate to the discipline, are part of the course.

*Admittance into the Mammography Advanced Program.*

1 Lecture hours. 1 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 262****Anatomy, Physiology and Procedures**

Proper positioning of patient for demonstration of suspect pathology of breast, correlated with course in anatomy and physiology, and routine procedures. Writing assignments, as appropriate to the discipline, are part of the course.

*Admittance into the Mammography Advanced Program.*

2 Laboratory hours. 1 Lecture hours. 2 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 263****Imaging Production and QA**

Analysis of various breast imaging and systems and quality of images submitted for interpretation. Practical applications of previously learned concepts; effects of technical factor selection, use of accessories and changes in patient type and condition. Writing assignments, as appropriate to the discipline, are part of the course.

*Admittance into the Mammography Advanced Program.*

1 Lecture hours. 1 Credit Hours.

**Offered At:** MX

**Radiography (RADIOGR) 265**

**Mammography Clinical Education**

The program strives to empower students of diverse backgrounds and abilities to develop, apply, critically analyze, integrate, synthesize and evaluate concepts and theories in the performance of mammographic procedures. Through structured, sequential, competency-based clinical assignments, concepts of team practice, patient-centered clinical practice, and professional development are discussed and evaluated. The program provides graduates with a level of preparation to become licensed, certified and employed entry-level mammographers upon completion of all program requirements.

*Admittance into the Mammography Advanced Program.*

12 Clinical hours. 1 Lecture hours. 5 Credit Hours.

**Offered At:** MX