



Broward Community College Course Outline

STATUS: A

COMMON COURSE NUMBER: RTE 2523

COURSE TITLE: Radiographic Anatomy and Positioning III

CREDIT HOURS: 3

CONTACT HOURS BREAKDOWN:

Lecture/Discussion 48

Lab 00

Other 00

Contact Hours/Week 3.0

CATALOG COURSE DESCRIPTION:

The principles of anatomy and positioning related to the skull to include facial bones, sinuses and mastoids; thorax to include ribs and sternum; mammary glands; trauma, pediatric and mobile radiography.

Prerequisite: RTE 1824

Corequisite: RTE 2523, RTE 2623, RTE 2728, RTE 2834

UNIT TITLES:

1. Ribs
2. Sternum, Sternoclavicular joints
3. Skull (Cranium)
4. Facial /Nasal / Zygoma
5. Orbits / Optic Foramen
6. Mandible / TMJ
7. Sinuses
8. Temporal Bone (Mastoids)

LAST REVIEW Academic Year 2002-2003

Interim Revision Dates:

NEXT REVIEW Academic Year 2007-2008

Radiographic anatomy & Positioning III

I. Course Overview:

Upon successful completion of this course, the student should be able to identify anatomy and correctly position the patient for radiographs of the ribs.

II. Units:

Unit 1. Ribs

General Outcome:

- 1.0 The student should be able to identify the anatomy and identify/describe the positions or projections used to demonstrate the ribs.

Specific Learning Outcome:

Upon successful completion of this unit, the student should be able to

- 1.1 Describe anatomic location and purpose of the ribs.
- 1.2 State number of bones comprising the bony thorax..
- 1.3 Distinguish between true, false and floating ribs.
- 1.4 Identify the anatomy of a typical vertebra.
- 1.5 Identify the articulations between ribs and vertebra.
- 1.6 Describe the common locations for “extra” ribs.
- 1.7 Identify on drawings/radiographs all anatomy of a typical rib.
- 1.8 Identify the features of “true ribs” which distinguish them from false or floating ribs.
- 1.9 Discuss technical differences for radiography of “upper” vs “lower” ribs
- 1.10 List the "routine" positions/ projections for radiographic visualization of the upper and lower ribs.
- 1.11 Determine which position/projection will best demonstrate the various aspects of each rib.
- 1.12 State the film size appropriate for each position of the rib routine.
- 1.13 Identify anatomy best demonstrated on each position/projection of the ribs.

- 1.14 Describe the technical factors employed for radiography of the ribs including kVp, mA, time, and distance.
- 1.16 Describe breathing instructions for upper and lower rib routines.
- 1.17 Discuss radiation protection practices for radiography of the ribs.
- 1.18 State reasons for performing radiography of the ribs.
- 1.19 List criteria for determining if rib films are of radiographic quality.

Unit 2. Sternum & Sternoclavicular Joints

General Outcome:

- 2.0 The student should be able to identify the anatomy and identify/describe the positions or projections used to demonstrate the sternum and its articulations.

Specific Learning Outcome:

Upon successful completion of this unit, the student should be able to

- 2.1 Identify on drawings or radiographs the anatomy of the sternum.
- 2.2 Describe the articulations between the sternum and the bony thorax.
- 2.3 Discuss the breathing instructions recommended for sternum radiography.
- 2.4 List the routine positions/projections for radiographic visualization of the sternum and its associated articulations.
- 2.5 Identify the anatomy best demonstrated on each projection of the sternum and its associated articulations.
- 2.6 State the central ray direction and location for each projection of the sternum and its associated articulations.
- 2.7 State the film size appropriate for each projection of the sternum and its associated articulations.
- 2.8 Describe the technical factors employed for Radiography of the sternum and its associated articulations including kVp, mA, Time and Distance.
- 2.9 Discuss radiation protection for sternum radiography
- 2.10 State reasons for performing radiography of the sternum and its associated articulations.
- 2.11 State the criteria for determining if sternum films are of diagnostic quality.

Unit 3. Anatomy and positioning of the skull (cranium)

General Outcome:

- 3.0 The student should be able to identify the anatomy and identify/describe the positions or projections used to demonstrate the skull (cranium)..

Specific Learning Outcome:

Upon successful completion of this unit, the student should be able to

- 3.1 Identify bony parts of the cranium on a diagram, "dry skull" or radiographs of a skull.
- 3.2 Identify the following anatomic reference points employed in radiography of the skull:
- Median sagittal plane
 - Coronal plane
 - Orbitomeatal line
 - Canthomeatal line
 - Acathomeatal line
 - Infraorbitomeatal line
 - Glabella
 - Nasion
 - Canthus (inner and outer)
 - Acanthion
 - Mental point
 - Gonion
 - Interpupillary line
 - External Occipital ridges
 - Supra & Infra orbital ridges
 - Auricle (pinna)
 - Skull vertex
 - Glabelloaveolar line
- 3.3 Identify the various portions of each of the individual bones making up the cranium.
- 3.4 Describe the articulations which each bone of the cranium makes with the other bones of the skull.
- 3.5 Name the sutures of the skull and identify the bones involved with each suture.
- 3.6 Identify the joint classification type of each skull bone articulation.
- 3.7 Define "Bregma" and "Lambda" as they relate to the skull.
- 3.8 Discuss skull classification by shape and size.
- 3.9 Differentiate between Mesocephalic, Brachycephalic and Dolichocephalic skull shapes.
- 3.10 Name the projections employed for the routine skull series.
- 3.11 Identify each projection of the skull and determine if it is correctly positioned.

- 3.12 Describe the technical exposure factors employed for each projection of the skull including mA, kVp, time and distance.
- 3.14 Describe the anatomy best demonstrated by each of the skull projections.
- 3.15 Discuss the anatomic landmarks used to determine the quality of positioning for any skull projection and how they are used.
- 3.16 Discuss differences in "basic" and "trauma" routine for examination of the skull.
- 3.17 Describe the "patient considerations" which should be a part of the radiographic examination of the skull.
- 3.18 Discuss reasons for performing radiography of the cranium.

Unit 4. Facial/zygomatic arch/nasal bones

General Outcome:

- 4.0 The student should be able to identify the anatomy and identify/describe the positions or projections used to demonstrate facial bones, zygomatic arch and nasal bones.

Specific Learning Outcome:

Upon successful completion of this unit, the student should be able to

- 4.1 Name and identify on a diagram, dry skull or radiograph, those bones making up the part of the skull known as the facial area.
- 4.2 Describe the basic projections employed for radiography of the facial bones, zygomatic arch and the nasal bones.
- 4.3 Identify the articulations between the facial bones.
- 4.4 Identify the various portions that comprise each of the facial bones.
- 4.5 State the central ray direction and location for each projection of the facial, zygomatic and nasal bones.
- 4.6 Describe the anatomy best demonstrated by each of the basic facial/zygomatic arch/nasal bones projections.
- 4.7 Discuss the anatomic landmarks used to determine the quality of positioning for any facial/zygomatic arch/nasal bones projection and how they are used.
- 4.8 Describe the "patient considerations" which should be a part of the radiographic examination of the facial/zygomatic arch/nasal bones.

- 4.9 Discuss reasons for performing radiography of facial bones.
- 4.10 Determine if films of the facial area are of radiographic quality.
- 4.11 Identify the technical factors employed for each projection of the facial area to include mA, kVp, time, SID and film size.

Unit 5. Orbits and optic foramen

General Outcome:

- 5.0 The student should be able to identify the anatomy and identify/describe the positions or projections used to demonstrate the orbits and optic foramen.

Specific Learning Outcome:

Upon successful completion of this unit, the student should be able to

- 5.1 Identify on a diagram, radiograph or bony skeleton those individual bones making up the "orbit".
- 5.2 Describe the shape and orientation of the bony orbit relative to the skull as a whole.
- 5.3 Identify and describe the foramen and fissures located in the area of the bony orbit.
- 5.4 Identify the bone(s) in which the optic foramen, superior and inferior orbital fissures are located.
- 5.5 Describe a "blow-out" fracture as it relates to the bony orbit and state the projection that best demonstrates it.
- 5.6 Describe a "tripod" fracture and state which facial bone is affected.
- 5.7 Identify the routine projections employed to demonstrate the orbit and optic foramen.
- 5.8 List the anatomy best demonstrated on each projection of the bony orbit and optic foramen.
- 5.9 State the central ray direction and location for each projection of the orbit and optic foramen.
- 5.10 Describe the technical factors for each projection of the orbit and optic foramen to include mA, kVp, time, SID and film size.

- 5.11 Describe the patient/part positioning for each projection of the orbit and optic foramen.
- 5.12 Discuss the anatomic landmarks used to determine the quality of positioning for any orbits and optic foramen projection and how they are used.
- 5.13 Describe the "patient considerations" which should be a part of the radiographic examination of the orbits and optic foramen.
- 5.14 State reasons for performing radiography of the orbits and optic foramen.

Unit 6. Mandible and TMJ's

General Outcome:

- 6.0 The student should be able to identify the anatomy and identify/describe the positions or projections used to demonstrate the mandible and TMJ.

Specific Learning Outcome:

Upon successful completion of this unit, the student should be able to

- 6.1 Identify on a diagram, skeleton or radiograph, the anatomic structures of the mandible and tempromandibular joint.
- 6.2 Name and describe the routine projections employed to visualize radiographically the mandible and TMJ's.
- 6.3 Describe the patient/part and equipment positioning for each of the mandible/T.M.J. projections.
- 6.4 Explain why open and closed mouth projections are required for the T.M.J. routine.
- 6.5 Identify the technical factors employed for each of the routine projections employed in mandible and TMJ's radiography including; SID, mA, kVp, time and film size.
- 6.6 State the central ray direction and location for each projection of the mandible and TMJ.
- 6.7 State the anatomy best demonstrated by each of the routine mandible and TMJ's projections.
- 6.8 Discuss the anatomic landmarks used to determine the quality of positioning for any mandible and TMJ's projection and how they are used.

- 6.9 Describe the "patient considerations" which should be a part of the radiographic examination of the mandible and TMJ's.

Unit 7. Paranasal sinuses

General Outcome:

- 7.0 The student should be able to identify the anatomy and identify/describe the positions or projections used to demonstrate the paranasal sinuses vertebral column.

Specific Learning Outcome:

Upon successful completion of this unit, the student should be able to

- 7.1 Identify on a diagram, dry skull or radiograph the Frontal, Maxillary, Ethmoid and Sphenoid Sinus.
- 7.2 Describe the routine projections employed to demonstrate the Paranasal sinuses.
- 7.3 Identify the sets of paranasal sinuses and anatomy best demonstrated on each projection of the "sinuses".
- 7.4 Explain the importance of the upright position when radiographing the paranasal sinuses.
- 7.5 Describe the patient/ part and equipment positioning for each projection of the sinuses.
- 7.6 Describe the technical factors employed for each projection of the sinuses including; SID, mA, kVp, time and film size.
- 7.7 State reasons for performing radiography of the sinuses.
- 7.8 Discuss the anatomic landmarks used to determine the quality of positioning for any paranasal sinuses projection and how they are used.
- 7.9 Describe the "patient considerations" which should be a part of the radiographic examination of the paranasal sinuses.

Unit 8. Temporal bones & mastoids

General Outcome:

- 8.0 The student should be able to identify the anatomy and identify/describe the positions or projections used to demonstrate the temporal bones.

Specific Learning Outcome:

Upon successful completion of this unit, the student should be able to

- 8.1 Identify on a diagram, dry skull or radiograph the various parts of the temporal bone.
- 8.2 Describe the structures located in the petrous portion of the temporal bone.
- 8.3 Identify the routine projections employed to radiograph the mastoid portion of the temporal bone.
- 8.4 Identify the various portions that comprise the temporal bone.
- 8.5 Distinguish between the external, middle and inner ear and describe the various portions of each.
- 8.6 Identify those bones that are responsible for hearing and equilibrium.
- 8.7 Describe the structures best demonstrated on each projection of the mastoid portion of the temporal bones.
- 8.8 Describe the patient/part and equipment positioning for each projection of the temporal bones.
- 8.9 Identify the technical factors employed for each of the projections of the temporal bones including; SID, mA, kVp, time and film size.
- 8.10 Discuss the anatomic landmarks used to determine the quality of positioning for any temporal bones projection and how they are used.
- 8.11 Describe the "patient considerations" which should be a part of the radiographic examination of the temporal bones.
- 8.12 State the central ray direction and location for each projection of the mastoids.