RADT A175: RADIOGRAPHIC POSITIONING AND CRITIQUE 2

Item	Value
Curriculum Committee Approval Date	11/28/2018
Top Code	122500 - Radiologic Technology
Units	3 Total Units
Hours	108 Total Hours (Lecture Hours 27; Lab Hours 81)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	Yes
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)

Course Description

Radiographic positioning principles, laboratory practice, and image analysis of the lower extremities, vertebral column, and basic skull. Overview of common pathologies of identified areas. PREREQUISITE: RADT A170. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Develop positioning skills applicable to lower extremity, spinal column, and basic cranial studies.
2. Apply principles of image analysis to the examination in the course.
3. Demonstrate appropriate patient care skills and adherence to radiation protection practices.

Course Objectives

- 1. Identify topographical anatomy as applied to radiographic positioning. *
- 2. Identify and perform the standard radiographic procedures of the lower extremities. *
- 3. Identify and perform the standard radiographic procedures of the vertebral column. *
- 4. Identify and perform the standard radiographic procedures of the basic skull. *
- 5. Identify common pathologies related to the lower extremities, vertebral column and basic cranium.*
- 6. Recognize common radiographic pathologies related to the lower extremities, vertebral column and basic cranium. *
- 7. Demonstrate standard radiographic techniques including the ability to evaluate image quality to measurable standards. **
- 8. Demonstrate knowledge and application of principles of low dose radiography, x-ray beam alignment,collimation and gonadal shielding. *
- 9. Select optimum exposure factors and radiographic accessories to maximize radiographic quality and limit radiation exposure to the patient. **
- 10. Evaluate and analyze image quality of the lower extremities, vertebral column and basic cranium. **
- 11. Identify basic operational principles of tomographic imaging. *
- I Scan Identification
- II * Competencies
- III ** Foundation Skills

Lecture Content

Introduction Review course syllabus Course textbooks Course objectives Review course assignments Scope and format Due dates Discuss course policies Academic Honesty Policy Attendance Test make-up Late assignments Grading policy Lecture Lower extremity radiography - feet, toes, heel Anatomy Routine positioning Exam protocol Lab Activity Orientation to lab Protocols Lab assignments Lab groups Demonstration - routine positions Foot Heel LAB assignment - routine positions Foot Heel Pathology case file Foot Heel Lecture Ankle and lower leg Anatomy outine positioning Exam protocol Lab Activity Demonstration - routine positions Ankle Lower leg Special view - mortise (ankle) Assignment Routine positions - ankle/lower leg Special views - Mortise of ankle Image analysis with radiographic anatomy identification Pathology case file Ankle Lower leg Lecture Knee and patella Anatomy Routine positioning Exam protocol Special patella views Lab Activity Demonstration - routine positions Knee Patella Special views - patella Assignment Routine positions - knee Special views - patella Image analysis with radiographic anatomy identification Routine knee Special patella views Pathology case file Routine knee Special patella views Lecture Femur Anatomy Routine positioning Exam Test #1 – Lower extremity (toes to ankle) Lab Activity Demonstration - routine positions Femur - lower/upper (hip) Assignment Routine positions - lower femur/upper femur Image analysis with radiographic anatomy identification Femur Pathology case file Femur Hip Lab Test #1 (toes to ankle) Lecture Principles of Orthoroentgenography Lab Activity Discussion Leg length methods Assignment Continue with femur Image Analysis with radiographic anatomy identification Femur Test #2 – lower extremity (leg to hip) Lab Activity Lab Test #2 – lower extremity (leg to hip) Lecture Introduction to vertebral column Anatomy Positioning principles Exam protocols Lab activity Vertebral column positioning Basic principles Pathology case file Lecture Cervical and thoracic spine Anatomy Routine positioning Exam protocol Special views - trauma cervical spine/scoliosis series Lab Activity Demonstration Routine positions - cervical spine/thoracic spine Special views - trauma cervical spine/scoliosis series Assignment Routine positions - cervical spine/thoracic spine Special views - trauma cervical spine Image analysis with radiographic anatomy identification Routine cervical spine Routine thoracic spine Trauma cervical spine Pathology case file Cervical spine Thoracic spine Lecture Lumbar spine, sacrum and coccyx Anatomy Routine positions Exam protocol Lab Activity Demonstration - routine positions Lumbar spine Sacrum Coccyx Assignment Routine positions - lumbar spine/sacrum and coccyx Image analysis with radiographic anatomy identification Lumbar spine Sacrum and coccyx Pathology case file Lumbar spine Sacrum and coccyx Lecture Test #3 (Vertebral column) Lab Activity LAB Test #3 (Vertebral column) Introduction to Skull Lab Project Lecture Introduction to Skull Positioning Topographic anatomy Positioning guidelines Basic anatomical structures Lab Activity Introduction to Skull Positioning Basic principles Location of positioning landmarks Demonstration Routine skull views – PA/Caldwell, AP Axial, Lateral, Parietocanthial (waters method) Assignment Skull positioning for skull project Skull pathology case file Lecture Introduction to Tomography Basic principles Methods Factors affecting image formation Lab activity Review of lab final exam Library orientation - schedule with OCC library staff Orientation to library and available services for Radiology program students by library staff - review guidelines required for RAD Tech 270 course project (scientific paper or display project); library orientation will outline the services students can

utilize to complete RAD Tech 270 course project. Lecture Comprehensive final exam Lab activity Comprehensive final exam Lab practicum final Image evaluation and pathology test Lab clean-up and shut-down

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- Lab (04)
- DE Live Online Lab (04S)

Instructional Techniques

Lecture and applicaton of theories Laboratory demonstration Individual and small group lab assignments Image analysis

Reading Assignments

Approximately 1.5 hours per week for a total of 24 per semester. 1. Lab image analysis and evaluation summations 2. Return lab demonstration 3. Skull lab project with written image evaluation 4. Identification of common pathologies – lower extremities, vertebral column, cranium

Writing Assignments

Approximately 0.3 hours per week for a total of 6 per semester. 1. Lab image analysis and evaluation summations 2. Return lab demonstration 3. Skull lab project with written image evaluation 4. Identification of common pathologies – lower extremities, vertebral column, cranium

Out-of-class Assignments

Approximately 1.5 hours per week for a total of 24 per semester. 1. Lab image analysis and evaluation summations 2. Return lab demonstration 3. Skull lab project with written image evaluation 4. Identification of common pathologies – lower extremities, vertebral column, cranium

Demonstration of Critical Thinking

Laboratory assignments to include image analysis Written examinations - lecture and lab Adherence to laboratory guidelines Return lab demonstration

Required Writing, Problem Solving, Skills Demonstration

Laboratory assignments to include image analysis Written examinations - lecture and lab Adherence to laboratory guidelines Return lab demonstration

Eligible Disciplines

Radiological technology: Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience.

Textbooks Resources

1. Required Long, B. W., Hall Rollins, J, Smith, B. J.. Merrills Atlas of Radiographic Position and Procedures, 13th ed. Elsevier/Mosby, 2016 2. Required McQuillen Martensen, K. . Radiographic Image Analysis, 4th ed. Elsevier/Mosby, 2015

Other Resources

1. Merrills Atlas and Radiographic Image Analysis supplamental workbooks. Pathology Case File Image Analysis Case File Computer Instructional Programs