School of Nursing and Health Professions Syllabus

HUDSON COUNTY COMMUNITY COLLEGE

HUDSON is HOME!

Term: **Credits: 4**

Course Code: RAD 205

Title of Course: Radiography V

Days & Times:

Location:

Instructor:

Office Hours:

Office Location:

Email:

Phone:

Prerequisites: RAD 101, RAD 102, RAD 103, RAD 104, RAD 106, RAD 204, RAD 207

COURSE DESCRIPTION:

This course is a Review of RAD 101, 102, 103, & 204. General Review covers in detail all previous learned subjects such as Digital radiography, circuit tube construction, comparison of atomic interactions effect on exposure with ALARA and principles of exposure incorporating technical factor conversions for the control panel, along with understanding the relationship of patient body habitus and patient dosage. Online ARRT certification exam review programs begin.

COURSE OBJECTIVES:

At the end of this course, the student will be able to:

Methods of Patient Care

General Review

Demonstrate the ability to recall and understand past learned radiographic subject matter in order to be adequately prepared to sit for the ARRT certification examination upon program completion

Principles of Exposure/Imaging- SLO 1

AEC use

- Differentiate the platforms of AEC
- Discuss its AEC dependence on positioning
- Discuss the creative use of AEC

Circuit

- Draw, describe and identity part of the radiography circuit

- Describe the movement of current through the x-ray circuitry to the tube

Photon Production (Non-tissue)

- Discuss the interactions between the projectile electrons and the x-ray tube target.
- Identity and describe Characteristic and Bremsstrahlung x-rays
- Discuss similarities and difference in each type of radiation production

Photon Production (Tissue)

- Identify and describe interactions between radiation photons and matter.
- Differentiate interactions that occur in diagnostic, therapy and nuclear medicine
- Describe each interaction at the atomic level.

Compare interactions

- Differentiate between tissue and target interactions

Radiation Exposure/Technique

- Calculate technical factors for given studies while considering changes in IR systems, patient habitus.

Student Directed Review

- Identify areas of weakness and recommend topics for review.

Radiographic Imaging, I -IV- SLO 2

- Review Anatomy, Positioning, and Procedures Protocols for:
- Terminology, Chest, Abdomen, and Upper Extremity
- Lower Extremity, Shoulder & Pelvic Girdles, Pediatric & Geriatric, Ribs & Sternum
- Entire Spine; Skull, Contrast Studies, Advanced Imaging Studies

Patient Care and Image Production, Analysis and Display-SLO 3

- Discuss the legal and ethical aspect of radiography
- Identify the types of communication including age specific communication
- Discuss the radiographer's role in the patient experience
- Discuss infectious control and pharmacology as related to the radiology department
- Identify and discuss image production, analysis, and display in relation to digital imaging

All Faculty: Online Review Testing: Corectec and ASRT SEAL 5 Test Modules-SLO 4

- Introduce and familiarize students to computerized testing
- Provide a comprehensive review for ARRT course content certification examination
- Build up students' testing stamina to sit for ARRT radiography certification examination

- All 5 tests must achieve a minimum grade of 75%; two highest test scores used wks.9 &12

RTBC X-Ray Production and Safety-SLO5

- Describe the types of radiation.
- Discuss photon interactions with matter.
- Explain variations in cell radiosensitivity and response.
- List the units and measures used to evaluate radiation exposure.
- Discuss the agencies and regulations involved in radiation safety.
- Describe the proper use of personnel monitoring.
- Identify radiation protection tools and methods.
- Identify personnel and patient radiation protection techniques.

ASRT Essentials of Digital-SLO 6

- Describe the characteristics of digital imaging receptors and the factors that affect its response to exposure.
- Explain image capture process for digital image receptors as well as the factors that determine spatial resolution.
- Identify the sources of image blur and the equipment associated with digital fluoroscopic imaging systems.
- Describe how photostimulable phosphor (PSP) image receptors extract data.
- Analyze image data extracted from image receptors and to identify and describe the most common exposure indicators for image detectors and its effect on quality.
- Explain the difference between a cathode ray tube and a liquid crystal display monitors and their function.
- Examine the relationship between exposure indicator values, histogram analysis and automatic rescaling while assessing appropriate exposure levels.
- Locate and identity caused of artifacts on a digital image.
- Describe the components of a PACS, its functions and purpose.
- Define and describe the three pillars of radiation safety and the radiation safety units of measure and the different shielding methods for various procedures, including fluoroscopic procedures.
- Explain why quality assurance testing is important and how these tests are performed on photostimulable phosphor (PSP) and flat-panel image receptors.

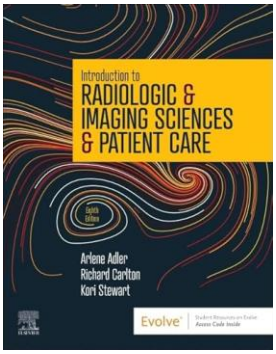
TEXTBOOK REQUIRED:

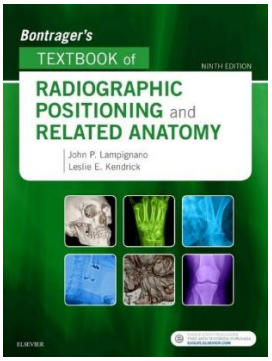
ARRT Content Specifications 2022 Radiography

ASRT Radiography SEAL 5 Test Online: The Radiography Student Exam Assessment Library Adler & Carlton, (2016),

Intro to Radiologic Imaging Sciences & Patient Care, 6th ed.

Bontrager, Lampugnano, (2017), Textbook of Radiographic Positioning and Anatomy, 9th ed.
Busho





EVALUATION METHODS:

- Test grades 60%
- Final exam 20%
- Quiz/homework/writing component 10%
- Rad Tech Bootcamp/Tech homework 10%
- Total 100%

WEEKLY OUTLINE:

Week	Topic	Learning Outcomes (L.O)
1	Independent Study-online prep assignments	**SLO 1**
2	Section 1 Radiographic Terms, Chest, Abdomen	**SLO 2**
3	**Legal/ Ethics, Interpersonal comm, Physical asst., vitals, and med. emergencies**	**SLO 3**
4	**Infectious control and pharmacology**	**SLO 4**
5	**Section 2 Upper Extremity from Digits to Shoulder Girdle**	**SLO 5**
6	**Lower Extremity**	**SLO 6**
7	**Display; Radiation biology and radiosensitivity**	**SLO 7**
8	**Safe patient movement and handling techniques; Photon production; Image Analysis**	**SLO 8**
9	**PACS**	**SLO 9**
10	**Dose Reduction and Patient Safety**	**SLO 10**

11	**Quality; Skull & Prep**	**SLO 11**
12	**Final Prep**	**SLO 12**
13	**Final Prep**	**SLO 13**
14	**Final Prep**	**SLO 14**
15	**Final Exam**	**Final EXAM**

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https://www.hccc.edu/administration/academic-affairs/syllabus-addendum.html