

BERGEN COMMUNITY COLLEGE
Division of Health Professions
Radiography Program

STUDENT SYLLABUS and COURSE OF STUDY for LECTURE

Course Title: PRINCIPLES OF IMAGING EQUIPMENT

Course Code: RAD 276

Sections: 001 and 002

Credits: 3.0

Pre-requisites: RAD 180- Introduction to Radiography

RAD 181- Radiography I

RAD 182- Radiography Clinical I

Co-requisites: RAD 282- Radiography II

RAD 283- Radiography Clinical II

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COURSE DESCRIPTION

The overall focus of this course is to orient the student radiographer to the fundamental principles, operation and application of equipment used in diagnostic imaging. Topics of this course include atomic structure, radiation, diagnostic x-ray circuit, image intensification, mobile, and automatic exposure control units. Radiation safety and patient care principles are reinforced.

REQUIRED TEXTBOOK AND RELATED WORKBOOKS

Author: Fosbner R and Orth D.

Title: Essentials of Radiologic Science

ISBN: 978-0-7817-7554-0

Publisher: Lippincott, William & Wilkins

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STUDENT LEARNING OBJECTIVES

Upon completion of the lectures, readings and assignments, the radiography student should be able to:

- ❖ Apply basic principles of physics to the formation of the x-ray circuit, tube and radiation production.
- ❖ Identify and explain basic atomic structure.
- ❖ Explain the functions of the:
 - Diagnostic x-ray circuit.
 - radiographic tube
 - image intensifier tube
 - mobile units
 - automatic exposure control
 - introduction to digital and computed imaging systems
- ❖ Determine the materials or metals that each component of the imaging system is composed.
- ❖ Explain how each function relates to the production of high energy x-rays and image creation.
- ❖ Identify the basic physical processes involved in the components listed in objective 2.
- ❖ Identify the parts of the diagnostic x-ray circuit, x-ray tube, portables, AEC, and image intensifier on illustrations and other diagrams provided.
- ❖ Perform basic mathematic computations for all physical principles.

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COURSE GRADE DETERMINTION

70% Computer Based Assessments ("Reviews")

Content for tests is based on lecture, reading and assignments. Question items will be of multiple choice types. The quizzes will be computer based. Laptop computers, IPADS or tablet is permitted. Phones are not permitted to be used to complete a quiz or exam.

30% Comprehensive Final Examination

An extensive examination that includes all content covered throughout the course and all reading, discussions.

Please note:

All reviews and examinations are **comprehensive**. They will cover content from each area taught. Students are expected to regularly study and retain all information taught throughout this course for success.

If students DO NOT possess an electronic device, all assessments MUST be taken in the testing center or on a computer in the x-ray laboratory.

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Course Learning Modules

Week of 1/23/17 Introduction to Physics	Week of 1/30/17 Introduction to Physics Review 1*
Week of 2/6/17 Sine waves and electricity	Week of 2/13/17 Electricity and magnetism Review 2*
Week of 2/20/17 Diagnostic x-ray circuit	Week of 2/27/17 Diagnostic x-ray circuit Review 3*
Week of 3/6/17 Diagnostic x-ray circuit	Week of 3/13/17 Spring break Review 4*
Week of 3/20/17 Radiographic tube	Week of 3/27/17 Radiographic tube Review 5*
Week of 4/3/17 Image Intensification	Week of 4/10/17 Image Intensification Review 6*
Week of 4/17/17 Mobile units	Week of 4/24/17 Automatic Exposure Control Review 7* Overview of course content for the final examination.
Week of 5/8/17 Final Examination	

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*Course Policies (Important) ***

Student Preparation Policy

Students are expected to review and study the lecture content before each class session. Please bring the textbook, notebook, and supplemental materials to class.

Notice of Changes Policy

The student is apprised that this document is subject to change. When any change is made the instructor will notify you in class or electronically.

Make Up- Policy

One comprehensive make up quiz will be allowed only one makeup is permissible when supported by *appropriate documentation*. The instructor does not need personal information. Only one make up assessment will be given. No student is permitted to take an assessment when late. Students are expected to be present before the start of the assessment to assure access to Moodle room.

Attendance Policy

Students **MUST** meet the minimum number of didactic hours in the curriculum; therefore students are expected to attend all class sessions.

Your attendance and participation in the classroom and laboratory aspects of the courses is mandatory. You will be allotted one grace absence. A final grade of less than 77% C+ is unacceptable. Students earning less than a C+ grade will not be permitted to continue until the course is repeated. *Two unsuccessful attempts at any radiography course results in permanent dismissal from the program.*

Timeliness

You are expected to be aware of course start times. You must allow sufficient time for travel and traffic. Late arrivals are distracting to the instructor and other students. This will **NOT** be tolerated.

Students will **NOT** be permitted to take the examination when the student is late. The quiz, tests, or exams are time sensitive.

Research, Writing, and/or Examination Requirement(s)

The School of Health Professions requires all academic papers and projects comply with the American Psychological Association.

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Academic Conduct

The faculties adhere to the policy statement governing academic conduct as outlined in the Bergen Community College catalog. Faculty may not post exam grades due to privacy laws. Faculty reserve the right to delay the return of exam grades until all students have taken the exam and faculty review of the exam has been completed. Cheating, plagiarism, and unethical behavior will not be tolerated. Any student who has demonstrated any of the above behaviors will be disciplined according to college procedures.

BCC Library

The Sidney Silverman Library is intended primarily for the use of Bergen Community College students, faculty and staff. However, all are welcome to visit the Library and to use its resources within the Library.

Borrowing privileges are extended to BCC students, faculty, staff and members of the BCC Foundation Alumni network, and to community residents through a borrowing agreement with the Bergen County Cooperative Library System (BCCLS).

Student Notes:

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Acknowledgment Form

I, _____ (print) have read and fully understand all information encompassed in this syllabus. I agree to abide by all requirements and policies.

By signing this form, I am acknowledging that I have read and agree to abide by the syllabus. My signature DOES NOT mean that I agree or disagree with any policy or provision contained here within.

Date: ____/____/____

Student's signature