RADIOGRAPHY

**Code:** RAD 114

**Title:** Radiographic Exposure II

**Division:** Health Sciences

**Course Description:** This course focuses on the prime factors of image production, imaging standards, and analysis techniques. It identifies concepts of quality control and quality assurance. Various exposure systems are compared and radiological science theories and techniques are applied in the clinical setting.

**Prerequisite:** RAD 130

**Corequisite:** RAD 122

**Credits:** 3 cr.

**Required Materials (Check Bookstore for Latest Edition):**
Click on the bookstore for the supplies which you are attending each class.
Rcbc.edu/bookstore

**Course Learning Outcomes:**
Upon completion of this course, students will be able to:

- Discuss practical considerations in setting standards for acceptable image quality.
- Critique recorded detail on various radiographic images.
- Differentiate between umbra and focal spot blur.
- Analyze the relationship of factors affecting recorded detail.
- Define distortion.
- Differentiate between shape and size distortion.
- Perform calculations to determine image magnification, percent magnification and magnification factor.
- Differentiate between magnification as distortion and macro-radiography.
- Summarize the relationships of factors affection distortion.
- Formulate a plan of action to decrease image distortion.
- Assess radiographic density on radiographic images.
- Distinguish between acceptable and unacceptable image densities.
• Analyze the relationships of factors that control and affect image density
• Critique the radiographic contrast with various radiographic images.
• Differentiate between subject contrast and image receptor contrast.
• Distinguish between acceptable and unacceptable image contrast.
• Compare long-scale and short scale contrast image
• Analyze the relationships of factors that control and affect image contrast.
• Summarize the relationships of factors affecting exposure latitude
• Describe the operation and applications for different types of beam-limiting devices.
• Evaluated beam-limiting devices
• Select the most appropriate beam-limiting device to be used for a given clinical situation.
• Explain beam filtration
• Describe the change in the half value layer when additional filtration is added to the beam.
• Summarize the relationships of factors affecting scattered and secondary radiation
• Evaluate the effects of scattered radiation on the image
• Compare types of grids
• Articulate the advantages and disadvantages of grid use.
• Describe grid maintenance
• Select the most appropriate grid from a given clinical situation
• Interpret grid efficiency in terms of grid ratio and frequency
• Define grid cut-off
• Summarize the factors influencing grid cut-off.
• Evaluate grid artifacts.
• Formulate a set of rules for grid use to prevent grid cutoff and artifacts.
• Be able to formulate technique charts
• Discuss the considerations involved in technique selection;
• Distinguish various technique systems;
• Effectively utilize conversion systems to manipulate technique;

**GENERAL EDUCATION OUTCOMES IN THIS COURSE:**

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<th>Written and Oral Communication: Communication</th>
<th>* Students will logically and persuasively support their points of view or findings.</th>
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<td>Quantitative Knowledge and Skills: Mathematics</td>
<td>* Students will analyze data to solve problems utilizing appropriate mathematical concepts.</td>
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<td>* Students will translate quantifiable problems into mathematical terms and solve these problems using mathematical or statistical operations.</td>
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<td><strong>Core Course Content:</strong></td>
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<td>• Introduction to RAD 114</td>
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<td>• Review RAD 105</td>
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<td>• Introduction to radiographic quality analysis</td>
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<td>• Record detail</td>
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<td>• Radiographic mottle/noise</td>
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<td>• Radiographic distortion</td>
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<td>• Radiographic density</td>
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<td>• Automatic exposure systems</td>
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<td>• Radiographic contrast</td>
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<td>• Contrast scale</td>
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<td>• Fixed and variable kV technique system</td>
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<td>• Conversion charts</td>
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<th><strong>Course Activities:</strong></th>
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<td>Course activities vary from course to course and instructor to instructor. Below is a listing of some of the activities students can anticipate in this course:</td>
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<td>• <strong>Writing assignments:</strong> students will analyze current issues in the field using current articles from the popular press as well as library research including electronic resources databases.</td>
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\textbf{Speaking assignments:} students will present research individually or in groups using current technology to support the presentation (e.g., PowerPoint presentation); students will participate in discussions and debates related to the topics in the lessons. Discussions may also focus on cross-cultural and legal-ethical dilemmas as they relate to the course content.

\textbf{Simulation activities:} Trends and issues will be analyzed for their ethical as well as social or legal significance. Students might role-play common situations for classmates to analyze. Current news articles may be used to generate discussion.

\textbf{Case Studies:} Complex situations and scenarios will be analyzed in cooperative group settings or as homework assignments.

\textbf{Lectures:} This format will include question and answer sessions to provide interactivity between students and instructor.

\textbf{Speakers:} Representatives from various related fields may be invited to speak.

\textbf{Videos:} Related topics will provide impetus for discussion.

\textit{Educational Technology:}

Rowan College at Burlington County advocates a technology enhanced teaching and learning environment. Advanced technological tools may be used in any course section to facilitate instruction. Many of our sections are web-enhanced, which means that some of your work will be submitted or completed online. Web enhancements may include online materials, grade books, testing and quizzes and assignment submission. Many students enjoy the flexibility and convenience that these online enhancements have provided, however if you have concerns about the technology involved, please speak to your instructor immediately.

\textit{Student Evaluations:}

The student will be evaluated on the degree to which student learning outcomes are achieved. A variety of methods may be used such as tests, quizzes, class participation, projects, homework assignments, presentations, etc.

See individual instructor’s course handouts for grading system and criteria (point value for each assessment component in course, e.g. tests, papers, presentations, attendance etc.), number of papers and examinations required in the course, and testing policy including make ups and/or retests.

\textit{Grading Standard:}
A Mastery of essential elements and related concepts, plus demonstrated excellence or originality.
B+ Mastery of essential elements and related concepts, showing higher level understanding.
B Mastery of essential elements and related concepts.
C+ Above average knowledge of essential elements and related concepts.
C Acceptable knowledge of essential elements and related concepts.
D Minimal knowledge of related concepts.
F Unsatisfactory progress. This grade may also be assigned in cases of academic misconduct, such as cheating or plagiarism, and/or excessive absences.

For other grades, see the current ROWAN COLLEGE AT BURLINGTON COUNTY catalog.

**COLLEGE POLICIES:**

The current college catalog and student handbook are important documents for understanding your rights and responsibilities as a student in the RCBC classroom. Please read your catalog and handbook as they supplement this syllabus, particularly for information regarding:

- Academic Integrity Code
- Student Conduct Code
- Student Grade Appeal Process

**OFFICE OF STUDENT SUPPORT AND DISABILITIES SERVICES:**

RCBC welcomes students with disabilities into the college’s educational programs. Access to accommodations and support services for students with learning and other disabilities is facilitated by staff in the Office of Student Support (OSS). In order to receive accommodations, a student must contact the OSS, self-identify as having a disability, provide appropriate documentation, and participate in an intake appointment. If the documentation supports the request for reasonable accommodations, the OSS will provide the student with an Accommodation Plan to give to instructors. Contact the Office of Student Support at 609-894-9311, ext. 1208 or visit the website at: www.rcbc.edu/studentsupport

**ADDITIONAL SUPPORT/LABS:**

RCBC provides academic advising, student support personal counseling, transfer advising, and special accommodations for individuals with disabilities free to all students through the Division of Student Services. For more information about any of these services, visit the Laurel Hall on the Mt. Laurel Campus, or call (609) 894-9311 or (856) 222-9311, then dial the desired extension:
- Ext. 1557 Academic Advisement and Counseling
Ext. 1803 Special Populations
Ext. 2737 Transfer Center

Or visit the following websites:
Academic Advising  www.rcbc.edu/advising
Student Support Counseling  www.rcbc.edu/counseling
Transfer Center  www.rcbc.edu/transfer

RCBC offers a free tutoring for all currently enrolled students. For more information regarding The Tutoring Center call Extension 1495 at (609) 894-9311 or (856) 222-9311 or visit the Tutoring Center Website at www.rcbc.edu/tutoring

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