SYLLABUS
RDT 104: Principles of Exposure I
(3 Credits)

RDT 104 D01, D02
Fall 2016

Instructor: Karie Solembrino, M.S., R.T. (R)(CT)(ARRT)
Department Head and Professor of Radiologic Technology

Class Times:
Lecture: Wednesdays, 9:00 am – 11:00 am
Lab: Wednesdays, 12:00 pm – 2:00 pm
Thursdays, 12:00 pm – 2:00 pm

Office: AHB 307H
Phone: 410-572-8741
Email: ksolembrino@worwic.edu

Office Hours:
Tuesdays 9:00 am to 11:00 am
Thursdays 9:00 am to 11:00 am
Fridays 9:00 am to 10:00 am
Additional hours by appointment

Associate: 410-572-8740

Text

Course Access Code
Mosby’s Radiography Online, 3rd Edition

Course Description
This course includes the basic methods of X-ray production, image acquisition and various parameters affecting image quality. Beam attenuation characteristics and the interactions of ionizing radiation within the human body are explained. Hours: 26 lecture and 26 laboratory. Prerequisite: Permission of the department head. Course fee: $60. Usually offered in the fall.
## Course Objectives

<table>
<thead>
<tr>
<th>Course Objectives</th>
<th>Assessment Goals</th>
<th>Assessment Strategies</th>
</tr>
</thead>
</table>
| 1. Describe the interactions that occur between x-radiation and the human body.  | 1. Describe the clinical significance of the photoelectric and modified scattering interactions.  | • Exposure Assignments  
• Quizzes  
• Classwork  
• Chapter Tests  
• Comprehensive Final Exam |
| (GEO 1, 3, 7, 8)                                                                  | 2. Explain the incidence of photoelectric effect and Compton scattering according to the exposure technique selected.  |                                            |
|                                                                                  | 3. Explain how patient dose is affected according to the exposure technique selected.  |                                            |
|                                                                                  | 4. Explain how occupational dose is affected according to the exposure technique selected.  |                                            |
|                                                                                  | 5. Describe the process of coherent scattering.  |                                            |
|                                                                                  | 6. Explain the pair production and photodisintegration and identify the conditions necessary to facilitate the occurrence of these interactions.  |                                            |
|                                                                                   | 7. Identify different types of energy.  |                                            |
| **2. Describe the fundamental principles of radiographic exposure including the characteristics of matter, energy, and the components of the electromagnetic spectrum.** | 1. Differentiate between ionizing and nonionizing sources of radiation on the electromagnetic spectrum. | • Exposure Assignments  
• Quizzes  
• Classwork  
• Chapter Tests  
• Comprehensive Final Exam |
| (GEO 1, 3, 7)                                                                     | 2. Describe the relationship between energy and wavelength.  |                                            |
|                                                                                  | 3. Explain the relationship between energy and frequency.  |                                            |
|                                                                                  | 4. Identify the parts of the sine wave.  |                                            |
|                                                                                  | 5. Describe the properties of x-rays.  |                                            |
|                                                                                  | 6. Describe the basic structure of the atom, the parts of the atom, and the charges associated with each component.  |                                            |
|                                                                                  | 7. Identify different types of energy.  |                                            |
| **3. Explain the interactions responsible for creating the x-ray beam, the primary exposure factors impacting x-ray production, and the equipment required to produce ionizing radiation.** | 1. State the principles of x-ray production.  | • Exposure Assignments  
• Exposure Presentation  
• Quizzes  
• Classwork  
• Chapter Tests  
• Comprehensive Final Exam |
| (GEO 1, 3, 4, 7)                                                                   | 2. Compare the production of bremsstrahlung and characteristic radiations.  |                                            |
|                                                                                  | 3. Describe the conditions necessary to produce x-radiation.  |                                            |
|                                                                                  | 4. Describe the x-ray emission spectra.  |                                            |
|                                                                                  | 5. Identify the factors affecting the x-ray emission spectra.  |                                            |
|                                                                                  | 6. Describe the discovery of x-ray, the pioneers associated with its invention, and the radiographic modalities developed for diagnostic purposes.  |                                            |
|                                                                                  | 7. Identify the parts and functionality of each component in the x-ray tube.  |                                            |
|                                                                                  | 8. Explain the line focus principle.  |                                            |
|                                                                                  | 9. Describe the anode heel effect and the reason for its occurrence.  |                                            |
|                                                                                  | 10. Identify and describe the exposure factors affecting x-ray beam quality and quantity.  |                                            |
|                                                                                  | 11. Differentiate between the types of filtration and describe the purpose of each type identified.  |                                            |
|                                                                                  | 12. Explain the purpose of tube rating and tube cooling charts and solve problems evaluating tube charts.  |                                            |
|                                                                                  | 13. Calculate heat units based upon the x-ray generator, kVp, mA, and time selections.  |                                            |
| **4. Explain beam attenuation according to tissue thickness, presence of pathology, and trauma considerations.** | 1. Define beam attenuation.  | • Exposure Assignments  
• Quizzes  
• Classwork  
• Chapter Tests  
• Comprehensive Final Exam |
<p>| (GEO 1,3, 7)                                                                       | 2. Differentiate between tissue types and explain how beam attenuation is affected.  |                                            |
|                                                                                  | 3. Describe how beam attenuation is modified according to the presence of additive or destructive pathology.  |                                            |
|                                                                                  | 4. Explain how beam attenuation is modified as the result of trauma.  |                                            |
|                                                                                  | 5. Identify basic exposure technique selections for routine imaging projections.  |                                            |</p>
<table>
<thead>
<tr>
<th>Course Objectives</th>
<th>Assessment Goals</th>
<th>Assessment Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Explain the methods of image acquisition in diagnostic radiology. (GEO 1, 2, 3, 7, 8)</td>
<td>1. Explain image production for conventional, cassette-based, and cassetteless image acquisition devices. 2. Describe the image quality factors associated with each image acquisition device. 3. Compare image acquisition devices in terms of image production, image processing, and image display. 4. Describe the impact an image acquisition device has upon exposure technique selection and patient dose.</td>
<td>• Exposure Assignments  • Exposure Presentation  • Quizzes  • Classwork  • Chapter Tests  • Comprehensive Final Exam</td>
</tr>
<tr>
<td>6. Describe the image quality factors associated with conventional and digital imaging acquisition devices and explain the compensation to exposure technical factors as indicated in clinical situations. (GEO 1, 2, 3, 7)</td>
<td>1. Define spatial resolution. 2. Compare the spatial resolution demonstrated according to the image acquisition method. 3. Explain the affect pixel size, matrix size, pixel pitch, pixel density, and FOV have upon spatial resolution. 4. Define contrast resolution 5. Compare the contrast resolution demonstrated according to the image acquisition method. 6. Describe the factors which influence the contrast resolution on the resultant image. 7. Differentiate between shape and size distortion. 8. Describe how distortion is minimized on the radiographic image to improve image quality. 9. Apply the mathematical formulas used for changing variables affecting density, distortion, and intensity of the x-ray beam.</td>
<td>• Exposure Assignments  • Quizzes  • Classwork  • Chapter Tests  • Comprehensive Final Exam</td>
</tr>
<tr>
<td>7. Describe scatter control methods and the effect scatter has upon image quality. (GEO 1, 2, 3, 7)</td>
<td>1. Define scatter. 2. Identify the appearance of scatter on the radiograph. 3. Describe methods utilized for scatter control. 4. Define quantum mottle, determine the causes, and describe the radiographic appearance. 5. Identify and describe the types of grid cutoff. 6. Differentiate between the types of beam restriction devices.</td>
<td>• Exposure Assignments  • Exposure Presentation  • Quizzes  • Classwork  • Chapter Tests  • Comprehensive Final Exam</td>
</tr>
<tr>
<td>8. Explain the fundamental principles of radiation protection for the patient and the radiologic technologist. (GEO 1, 2, 3, 5, 7, 8)</td>
<td>1. Define ALARA. 2. Describe how ALARA is applied in the clinical setting. 3. Identify and explain methods for providing radiation protection for the patient. 4. Identify and explain methods for providing radiation protection for the radiologic technologist. 5. Identify the cardinal rules of radiation protection and describe their application in clinical practice. 6. Describe the radiologic technologist’s ethical responsibility to exercise radiation protection measures for patients and healthcare personnel.</td>
<td>• Exposure Assignments  • Exposure Presentation  • Writing Assignment  • Quizzes  • Classwork  • Chapter Tests  • Comprehensive Final Exam</td>
</tr>
</tbody>
</table>
Course Content

The RDT course content reflects the American Society of Radiologic Technologists (ASRT) Radiography curriculum, the American Registry of Radiologic Technologists (ARRT) Licensure examination requirements, and the master plan of education enforced by the Joint Review Committee on Education in Radiologic Sciences (JRCERT).

1. Describe the factors affecting image quality when using conventional radiography and digital imaging acquisition methods.
2. Identify and describe the types of x-ray equipment used in clinical practice.
3. Explain beam attenuation according to tissue types and pathology present.
4. Differentiate between spatial and contrast resolution.
5. Explain scatter control methods utilized in the clinical arena.
6. Identify the radiographic exposure controls on the imaging console and the purpose each serves in the production of a diagnostic image.
7. Explain x-ray interactions in the human body.
8. Explain x-ray production in the tube.
9. Describe the electromagnetic spectrum.
10. Explain the characteristics of ionizing and nonionizing radiation.
11. Identify and explain mathematical formulas associated with exposure technical factors.
12. Describe the discovery of x-ray, the pioneers associated with its invention, and the radiographic modalities developed for diagnostic purposes.
13. Explain methods to limit radiation exposure to the patient and to healthcare personnel.

Academic Honesty Policy

Students found exhibiting any of the following types of behavior during or in the preparation/performance of any quiz, project, report, test, or final exam will receive a zero “0” for the assignment, and the student conduct violation will be referred to the Student-Faculty Disciplinary Committee. Cheating will not be tolerated in the Radiologic Technology program. Students found cheating will be DISMISSED from the Radiologic Technology program.

A. Cheating is defined as the act of obtaining information or data improperly or by dishonest or deceitful means; and
B. Plagiarism is defined as the copying or imitating the language, ideas, or thoughts of another author and presenting them as one’s original work, the copying of a theme or section from a book or magazine without giving credit in a footnote or copying from the manuscript of another student.

Sharing information present on a quiz or test are examples of academic dishonesty and will result in a grade of “F” for the course and immediate dismissal from the Radiologic Technology program.

Class Guidelines/Expectations

1. Be punctual and arrive to class before the scheduled meeting prepared to learn.
2. Attend all class sessions in their entirety.
3. **Submit only completed work. Partially completed assignments will earn a grade of 0. No late assignments will be accepted.**
4. Read assigned chapters in the textbook(s) before class meetings.
5. Ask questions to the instructor and attend scheduled tutoring sessions for clarification on course content areas.
6. Using cellphones in class is disrespectful to the course instructor and is a distraction to students. **Students are not permitted to use cellphones in class.** Cellphones should be placed in vibrate mode and put away during class lecture.

7. Leaving class during lecture results in students missing important information and earning low scores on graded assessments. Students are expected to remain in class for the entire scheduled session.

The semester is broken down into weeks. **Each week begins on Monday and ends on Sunday.** All course assignments submitted through Blackboard are due at **11:00 pm** on Sunday nights. Students are required to thoroughly complete all assignments/activities. No incomplete or half-attempted work will be accepted. **An assignment schedule will be posted in Blackboard by the first day of class.**

**Emergency Information Statement**

In the event of severe inclement weather or other emergency, information about the closing of the college will be communicated via e2Campus and the College's website. Faculty will communicate with students about their courses and course requirements, such as assignments, quiz and exam dates, and class and grading policies, via Blackboard. Students will be responsible for completing all assignments in accordance with class policies.

**RDT students are responsible for all assignments and due dates outlined in the course syllabus regardless if the college has been closed due to an emergency.**

**Services for Students with Disabilities**

Wor-Wic provides reasonable accommodations for students with disabilities, in compliance with the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973. If you are in need of accommodations, please contact the counseling office at (410) 334-2899. For more information, see Wor-Wic's Services for [Students with Disabilities](#) web page.

**Attendance**

Students are expected to attend all class sessions. If a student misses a class session, it is the student’s responsibility to acquire the information reviewed and ask questions to the course instructor during tutoring. Students absent from class will not be permitted to make-up missed quizzes or graded assessments administered during the scheduled class session.

**Blackboard**

Blackboard is used as a supplementary site for all RDT courses. To access course content in Blackboard you need to have access to a computer with an Internet connection, (other requirements may apply). Computers that meet these requirements are available on campus in BH 217, HH 100, GH 204, FOH 305, and AHB 108.

Please follow these directions to access course syllabi and any other materials posted for this course:
**Login Information:**

1. From Wor-Wic home page, point to “Blackboard” at the bottom left of the page and click.
2. Enter your Wor-Wic user ID and password. Don’t know your user ID or password? Contact Student Services

**Blackboard Components**

The following are tools the course instructor will be using in Blackboard:

**Syllabus**
The posted course syllabus documents the didactic schedule, assignments, due dates, and information pertinent to the course.

**Messages**
- Email from the course instructor will be located under the messages section of Blackboard.
- Students may email the instructor and other students in the class through messages.
- Email is the primary method of communication between students and the course instructor outside of the classroom.
- Students should visit the messages section daily in the course for new information sent by the instructor.

**Course Content**
The following items will be located within the course content of Blackboard:
1. PowerPoint Presentations,
2. Study Guides and Reviews, and
3. Assignment information. Content folders will be labeled by subject to organize course material.

**Grades**
Students can view grades in Blackboard. All graded assessments will be recorded into Blackboard.

**Blackboard Integrity**

All students logging into Blackboard affirm that they understand and agree to follow Wor-Wic Community College policies regarding academic integrity and the use of College resources as described in the college catalog. Wor-Wic Community College considers the following as violations of the computer usage policy:

1. Using the campus computing network and facilities to violate the privacy of other individuals.
2. Sharing of account passwords with friends, family members or any unauthorized individuals

Violators are subject to college disciplinary procedures.
ASSIGNMENTS/CLASSWORK (15% of the weighted grade)

Classwork
(GEO 1, 2, 3, 4, 5, 7, 8) (CO 1-8)

Students will complete classwork during scheduled course sessions. Participation is required to earn credit for classwork. **Failure to attend class or arriving late/leaving early will result in students earning a grade of 0 for classwork participation.** Classwork is part of the assignment weighted grade in the RDT 104 course evaluation.

Exposure Laboratory Assignments
(GEO 2, 4, 6, 7) (CO 3, 4, 5, 6, 7, 8)

A laboratory component is included in RDT 104. Students will perform laboratory experiments under the direct supervision of the course instructor. Laboratory assignments will be completed following the conclusion of experiments in class. Assignments will be distributed during lab sessions. Students are required to submit laboratory assignments according to due dates identified by the course instructor. **No incomplete or late assignments will be accepted. A grade of 0 is earned for any incomplete or late laboratory assignment submissions.**

Exposure Assignments
(GEO 1, 2, 3, 7) (CO 1 – 8)

Students will define exposure terminology and complete exposure questions which correlate to course objectives. Assignments should be submitted electronically through the Blackboard assignment link by the due date. **No incomplete or late exposure assignments will be accepted. A grade of 0 is earned for any incomplete or late assignment submissions.**

Exposure Presentation
(GEO 1, 7, 8, 9) (CO 3, 8)

Students will work in groups to complete a presentation using the 2016 National Radiologic Technology Week’s slogan, “Beaming with Pride” (ASRT, 2016). For this presentation, students will complete a poster board using this slogan to illustrate the progression of the Radiologic Technology profession from discovery to modern day. Students may choose to complete a presentation about diagnostic x-ray or on another modality depicting its progression from invention to current utilization. Groups must obtain instructor approval of selected topic before designing the presentation.

Grading criteria for this exposure presentation is displayed at the conclusion of the course syllabus. Students will complete this presentation on **Friday November 11, 2016.** All student presentations will be completed during this scheduled date. Students not participating in the exposure presentation will earn a grade of 0 for the assignment.

**An assignment schedule will be posted in Blackboard by the first day of class**
Electronic/Information Literacy Writing Assignment (15% of the weighted grade) (GEO 1, 2, 3, 5, 7, 8) (CO 1, 4, 8)

Students will complete a paper on the following topic: Practicing Radiation Protection in the Radiologic Technology Profession. For this writing assignment students will research the ARRT, ASRT, Image Gently and Image Wisely websites for information on methods to limit patient exposure and occupational dose received by the radiologic technologist. The following are the requirements for the RDT 104: Principles of Exposure I writing assignment:

1. A minimum of three electronic resources are required for this writing assignment. Students are to research methods to limit the radiation dose administered to patients during x-ray procedures by using the ARRT and ASRT websites. Additionally, the student will review the image gently and image wisely websites provided by the ASRT to learn about new initiatives focused on lowering the radiation dose patients receive during an imaging exam. Besides these required websites, the student will select another electronic reference from the WWCC database or by using a radiologic technology journal article and/or educational resource.

2. Describe how the radiologic technologist can limit patient exposure during x-ray exams. An explanation of ALARA and the cardinal rules of radiation protection must be included in this discussion.

3. Differentiate between the Image Gently and Image Wisely campaigns, explaining their association with radiation protection.

4. Describe the radiologic technologist’s ethical responsibility to reduce exposure to patients while performing x-ray procedures.

5. Clearly articulate three lessons learned from researching this topic.

6. The paper should follow APA format including headings, page numbers, a running head, title page, reference page, and the body of the paper should contain a minimum of five APA in-text citations. Use the paper template posted in Blackboard to ensure all APA paper format requirements are accurately followed.

7. The paper should be completed using Times New Roman, 12-point font, double-spaced, and the length requirement is a minimum of 500 words with a maximum of 750 words of content information included in the body of the paper.

8. Students are required to attend an APA writing conference to learn about APA formatting and APA citations. Attending a writing conference accounts for part of the writing assignment grade.

Students should reference the RDT 104 Electronic Information Literacy Writing Assignment grading rubric included within the course syllabus for additional details regarding evaluation criteria for this assignment.

The following is a list of Radiologic Technology electronic resources that may be used for the RDT 104 Writing Assignment:

8. https://www.arrt.org/
Besides the mandatory required attendance at an APA writing conference, if you wish to have additional help on a writing assignment, you may schedule an appointment with a writing conference instructor by going to your MyWorWic portal, selecting the Student Resources tab and then selecting Academic Support. Click on Writing Conferences to schedule a conference. Limited time slots are available, so an appointment is required. If you cannot keep your appointment, it is your responsibility to cancel it by going back to the Writing Conferences link. Please note that writing conferences are conducted in BH 227.

The Electronic/Information Literacy writing assignment is Due November 20, 2016 by 11:00 pm EST in Blackboard through messages. No late writing assignments will be accepted. Failure to submit the assignment by November 20, 2016 11:00 pm EST will earn a grade of 0.

Students are required to submit the electronic information literacy assignment in a digital format through blackboard. The paper must be submitted in a Microsoft Word compatible document. Papers will not be accepted in hard copy form.

**Evolve Exposure Online Modules**
(GEO 1, 2, 3, 7) (CO 1 – 8)

Students will complete exposure quizzes and exams in Evolve as assignments in RDT 104. For these assignments, students will complete the assigned module by reading the topic information, watching media presentations and interactive activities to prepare to complete the quizzes and exams. Students have two attempts to complete these assignments. The highest grade will be recorded. No Evolve assignments completed after the due date will be accepted for a grade. Failure to complete the Evolve assignments by 11:00 pm on the due date will earn a grade of 0.

**Quizzes (15% of the weighted grade)**
(GEO 1, 2, 3, 4, 7) (CO 1-8)

Students will complete quizzes on information presented in reading assignments, class lecture, and through PowerPoints. Quizzes may be administered online or in class. All quizzes have a time limit for completion. Students arriving late to class will not receive additional time to complete a quiz administered during class time. Quizzes will be distributed throughout the semester to measure the student’s comprehensive knowledge of course concepts and to encourage class attendance. Students are expected to complete chapter reading assignments before scheduled class meetings for quiz preparation. Quizzes will not be announced and will be given at different times throughout the class session or administered online. Students who report late or leave early may miss the quiz. Quizzes missed due to student absence or arriving late/leaving class early will result in a grade of 0. STUDENTS SHOULD ANTICIPATE A QUIZ FOR ALL CLASS MEETINGS.

**Lab Exposure Technique Assessment Test (35% of the weighted grade)**
(GEO 2, 4) (CO 4, 7, 8)

Students will complete an exposure technique assessment demonstrating knowledge of technique selection for routine radiographic projections and exams. Students are expected to complete the assessment on the scheduled date as documented in the course syllabus. No make-up exposure technique assessments will be administered. A grade of 0 is earned for any missed exposure technique assessments.
Tests (35% of the weighted grade)
(GEO 1, 2, 3, 4, 5, 7, 8) (CO 1-8)

Chapter tests will be administered throughout the semester. Three tests will be administered in RDT 104. Please refer to the class schedule for test dates. NO MAKE-UP TESTS WILL BE ADMINISTERED.

Comprehensive Final Examination (35% of the weighted grade)
(GEO 1, 2, 3, 4, 5, 7, 8) (CO 1-8)

The comprehensive final examination will cover all topics reviewed throughout the semester in RDT 104. NO MAKE-UP FINAL WILL BE ADMINISTERED.

Course Evaluation
Assignments/Classwork .......................................................................................................................... 15%
- Laboratory Assignments
- Exposure Assignments
- Exposure Presentation
- Classwork
- Paper
Quizzes ............................................................................................................................................ 15%
Exams ............................................................................................................................................. 35%
- Test 1
- Test 2
- Test 3
- Lab Exposure Technique Assessment Test
Comprehensive Final Exam ............................................................................................................ 35%

Grading Scale
A  93 – 100
B  84 – 92
C  75 – 83
D  66 – 74
F  0 – 65

A final grade below a 75.0% results in course failure and dismissal from the radiologic technology program. Grades are not rounded. A final grade of 74.9% will result in course failure and dismissal from the radiologic technology program.

Students are required to use a computer and the internet for this course. Any student who does not have this access at home will need to make arrangements to complete all coursework on campus. All students are required to complete all coursework according to the due dates documented in the course syllabus.
September
7  Chapter 1: Radiation and Discovery (Fauber)
    Chapter 1: Introduction to Imaging Sciences (Johnston)
    Chapter 2: Structure of the Atom (Johnston)

14  Chapter 2: The X-Ray Beam (Fauber)

21  Chapter 6: X-Ray Production

28  Chapter 7: X-Ray Interactions with Matter (Johnston)
    Chapter 8: Image Production (Johnston)

October
5   TEST ONE

12  Chapter 3: Image Formation and Radiation Quality (Fauber)

19  Chapter 6: Exposure Technique Factors (Fauber)

26  Chapter 6: Exposure Technique Factors (Fauber)

November
2    Chapter 9: Image Quality and Characteristics (Johnston)
    Chapter 10: Radiation Exposure Technique (Johnston)

9    TEST TWO

16  Chapter 7: Scatter Control (Fauber)
    Chapter 11: Scatter Control (Johnston)
    Radiographic Exposure Technique (Johnston)

23   NO CLASS THANKSGIVING BREAK

30  Chapter 4: Digital Imaging (Fauber)

December
7    TEST THREE

14   COMPREHENSIVE FINAL EXAMINATION
<table>
<thead>
<tr>
<th>Month</th>
<th>Dates</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>September</td>
<td>9/7 &amp; 9/8</td>
<td>Lab Session #1</td>
</tr>
<tr>
<td></td>
<td>9/14 &amp; 9/15</td>
<td>Lab Session #2</td>
</tr>
<tr>
<td></td>
<td>9/21 &amp; 9/22</td>
<td>Lab Session #3</td>
</tr>
<tr>
<td></td>
<td>9/28 &amp; 9/29</td>
<td>Lab Session #4</td>
</tr>
<tr>
<td>October</td>
<td>10/5 &amp; 10/6</td>
<td>Lab Session #5</td>
</tr>
<tr>
<td></td>
<td>10/12 &amp; 10/13</td>
<td>Lab Session #6</td>
</tr>
<tr>
<td></td>
<td>10/19 &amp; 10/20</td>
<td>Lab Session #7</td>
</tr>
<tr>
<td></td>
<td>10/26 &amp; 10/27</td>
<td>Lab Session #8</td>
</tr>
<tr>
<td>November</td>
<td>11/2 &amp; 11/3</td>
<td>Lab Session #9</td>
</tr>
<tr>
<td></td>
<td>11/9 &amp; 11/10</td>
<td>Lab Session #10</td>
</tr>
<tr>
<td></td>
<td>11/11</td>
<td>Exposure Presentation</td>
</tr>
<tr>
<td></td>
<td>11/16 &amp; 11/17</td>
<td>Lab Session #11</td>
</tr>
<tr>
<td></td>
<td>11/23 &amp; 11/24</td>
<td>NO CLASS THANKSGIVING BREAK</td>
</tr>
<tr>
<td>December</td>
<td>11/30 &amp; 12/1</td>
<td>Lab Session #12</td>
</tr>
<tr>
<td></td>
<td>11/7 &amp; 11/8</td>
<td>Lab Session #13</td>
</tr>
</tbody>
</table>

*** Specific lab activities will be communicated in class and on Blackboard. Lab activities will correspond with lecture objectives and content***
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Non-performance</th>
<th>Needs Improvement</th>
<th>Approaches Expectations</th>
<th>Meets Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 Total Points</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spelling</td>
<td>More than four spelling errors are present throughout the paper.</td>
<td>Three to four spelling errors are present in the discussion post.</td>
<td>One to two spelling errors are present in discussion post.</td>
<td>Paper is free of spelling errors.</td>
</tr>
<tr>
<td>Grammar</td>
<td>Does not demonstrate knowledge of grammatical rules as expressed in the English Language.</td>
<td>Three to four grammatical errors are identified in the paper.</td>
<td>One to two grammatical errors are identified in the paper.</td>
<td>Paper is free of grammatical errors.</td>
</tr>
<tr>
<td>Sentence Fluency</td>
<td>Frequent run-on or fragment sentences are present throughout the paper. No variety in sentence structure.</td>
<td>Many run-on or fragment sentences identified within the paper with limited sentence structure variation.</td>
<td>Sentence structure is varied throughout the paper.</td>
<td>Paper has a minimum of 500 words with a maximum of 750 words of content. This is CONTENT only.</td>
</tr>
<tr>
<td>Length Requirement</td>
<td>Paper has less than 425 words.</td>
<td>Paper has 425 to 449 words in the content section.</td>
<td>Paper has 450 to 499 words in the content section.</td>
<td>Paper has a minimum of 500 words with a maximum of 750 words of content. This is CONTENT only.</td>
</tr>
<tr>
<td>Content Part I</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALARA</td>
<td>The ALARA concept is not identified or described in the paper.</td>
<td>The ALARA concept is defined without explaining its importance to diagnostic imaging.</td>
<td>The ALARA concept is defined and its importance is partially described in the paper.</td>
<td>Define the ALARA concept and describe its importance to diagnostic imaging.</td>
</tr>
<tr>
<td>Content Part II</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Image Gently and Image Wisely</td>
<td>Image Gently and Image Wisely concepts are not included in the paper.</td>
<td>A basic explanation of Image Gently and Image Wisely are included in the paper.</td>
<td>Image Gently and Image Wisely are identified in the paper and a partial explanation of their purpose is described.</td>
<td>Differentiate between the Image Gently and Image Wisely campaigns and describe the purpose of each within the radiologic technology profession.</td>
</tr>
<tr>
<td>Content Part III</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethics</td>
<td>The ethical implications to lower radiation dose to the patient is not described.</td>
<td>The radiologic technologist’s ethical responsibility to limit exposure is mentioned but not explained within the paper.</td>
<td>The radiologic technologist’s ethical responsibility to limit radiation exposure is partially described.</td>
<td>Explain the radiologic technologist’s ethical responsibility to limit patient exposure during imaging exams.</td>
</tr>
<tr>
<td>Content Part V</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardinal Rules of Radiation Protection</td>
<td>Cardinal rules of radiation protection are not explained, or their application described, or information is incorrect.</td>
<td>Cardinal rules of radiation protection are identified but not explained.</td>
<td>Cardinal rules of radiation protection and their application to the performance of these x-rays are partially explained.</td>
<td>Explains the cardinal rules of radiation protection and their application to the performance of these x-rays.</td>
</tr>
<tr>
<td>Writing Conference Attendance</td>
<td>The student does not attend the entire APA writing conference.</td>
<td></td>
<td></td>
<td>Student attends an APA writing conference in its entirety and provides evidence of attendance from the writing conference instructor.</td>
</tr>
<tr>
<td>Explains Lessons Learned</td>
<td>Does not explain lessons through the conduction of research.</td>
<td>Explains one lesson learned through researching the selected topic.</td>
<td>Explains two lessons learned through researching the selected topic.</td>
<td>Explains a minimum of three lessons learned through researching the selected topic.</td>
</tr>
<tr>
<td>References in APA Format</td>
<td>Does not provide references in APA format and/or the required minimum number of resources.</td>
<td>Three electronic resources are documented in APA format with no more than four errors present.</td>
<td>Three electronic resources are documented in APA format with no more than two errors present.</td>
<td>A minimum of three educational electronic resources are provided in APA format.</td>
</tr>
<tr>
<td>APA Citations</td>
<td>In-text citations are not included and/or are not accurately documented in APA format.</td>
<td>Paper includes three accurately documented APA citation within the text of the paper.</td>
<td>Paper includes four accurately documented APA citations within the text of the paper.</td>
<td>Paper includes a minimum of five accurately documented APA citations within the text of the paper.</td>
</tr>
<tr>
<td>APA Paper Format</td>
<td>More than two errors in APA format are identified within the paper.</td>
<td>Two errors in APA format are exhibited</td>
<td>One error in APA format is exhibited in the paper.</td>
<td>Paper demonstrates APA format with 12 point Times New Roman font, a running head on the title page, page numbers, headings, double-spaced, etc. as required.</td>
</tr>
<tr>
<td>Paper Components</td>
<td>More than three paper elements are not included.</td>
<td>Three paper elements are not included.</td>
<td>Two paper elements are not included.</td>
<td>Paper includes a title page, introduction/conclusion, a minimum of 500 words of content, and a reference page.</td>
</tr>
</tbody>
</table>
### RDT 104 Exposure Presentation Grading Rubric

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Professional (5 Points)</th>
<th>Good (4 Points)</th>
<th>Fair (2 Points)</th>
<th>Poor (0 Points)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spelling Grammar</strong></td>
<td>Poster board presentation demonstrates good use of grammar and no spelling errors are present.</td>
<td>No more than two errors are present within the poster board presentation.</td>
<td>No more than three errors are identified within the poster board presentation.</td>
<td>More than three errors are identified within the poster board presentation.</td>
</tr>
<tr>
<td><strong>Creativity</strong></td>
<td>Presentation utilizes various colors, fonts, and supportive elements to creatively display content. A minimum of ten good quality pictures and/or other types of graphics are utilized to display subject content.</td>
<td>Presentation displays moderate creativity with eight to nine good quality pictures and/or other types of graphics are utilized to display subject content.</td>
<td>Presentation displays fair creativity with six to seven good quality images and/or other types of graphics are utilized to display subject content.</td>
<td>Presentation displays poor creativity and/or less than six good quality images and/or graphics are utilized to display subject content.</td>
</tr>
<tr>
<td><strong>Organization</strong></td>
<td>Poster board is professionally organized according to specific subtopics and is easily understood by the audience.</td>
<td>Poster board has good organization and the content is understood by the audience.</td>
<td>Poster board has fair organization but topics are not separated into categories distracting the audience from understanding content.</td>
<td>Poor organization is used throughout the presentation. The audience cannot follow the ideas presented on the poster board or their meaning.</td>
</tr>
<tr>
<td><strong>Content ASRT Slogan (ASRT, 2016)</strong></td>
<td>Presentation content accurately displays the evolution of the Radiologic Technology profession and its influence providing diagnostic and therapeutic outcomes for patients. The presentation provides a minimum of three examples explaining the ASRT slogan.</td>
<td>The presentation accurately displays the evolution of the Radiologic Technology profession and established criteria for the assignment using two examples explaining the ASRT slogan.</td>
<td>The presentation demonstrates some noted discrepancies in the content and/or only provides one specific example explaining the motto for National Radiologic Technology Week.</td>
<td>Content does not pertain to and/or is not focused upon the desired topic.</td>
</tr>
<tr>
<td><strong>References</strong></td>
<td>A minimum of four ELECTRONIC references are utilized for the poster board presentation, documented using APA format, and placed on the back of the poster board for evaluation.</td>
<td>Three electronic references are utilized for the poster board presentation, documented using APA format, and placed on the back of the poster board for evaluation.</td>
<td>Two electronic references are utilized for the poster board presentation, documented using APA format, and placed on the back of the poster board for evaluation.</td>
<td>Less than two electronic references are utilized for the poster board presentation and/or the references are not documented using APA style format and placed on the back of the poster board for evaluation.</td>
</tr>
<tr>
<td><strong>Voice/Fluency Inflection</strong></td>
<td>Speaks in complete sentences, varying tone, and language engaging the audience. Demonstrates interest in topic evident through language used; rate of communication creates a clear translation of information to the audience.</td>
<td>Follows the majority of the criteria established for voice/fluency/inflection but not all documented attributes.</td>
<td>Rate of communication, language used, and/or incomplete sentences at times distract the audience from the intended meaning of conveyed message.</td>
<td>Voice, fluency, and/or inflection frequently are distracting to the audience.</td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>Communicates topics in an organized manner easy for the listener to follow and understand. Speaks in complete sentences explaining presentation content.</td>
<td>Topic organization is good but few moments of difficulty understanding the information conveyed.</td>
<td>Communicates topics in a fairly organized manner and sometimes deters from completely explaining the thought via complete sentences.</td>
<td>Topics not communicated in an organized manner distracting the audience from understanding the intended message.</td>
</tr>
<tr>
<td><strong>Eye Contact</strong></td>
<td>Engages the audience throughout the presentation with eye contact.</td>
<td>Moderately engages the audience but refers to during the presentation.</td>
<td>Does not make sufficient eye contact with audience and/or uses notes excessively throughout the presentation.</td>
<td>Reads notes and does not engage audience with eye contact.</td>
</tr>
<tr>
<td><strong>Professional Appearance/Body Language</strong></td>
<td>Projects a business professional appearance and student exhibits characteristics of professionalism demonstrated through body language and completing the oral presentation.</td>
<td>Projects a business professional appearance but body language and mannerisms are at times distracting from the audience.</td>
<td>Projects a business professional appearance but body language and mannerisms are frequently distracting from the audience.</td>
<td>Does not project a business professional appearance and/or exhibit characteristics of professionalism while completing the oral presentation.</td>
</tr>
</tbody>
</table>