

Syllabus

Course Code: RADT 250

Title: Equipment Operation II

Institute: Health Science

Department: Allied Health

Course Description: This course covers advanced level concepts in x-ray production and equipment operation and maintenance of radiographic units including theoretical concepts of electrostatics, electromagnetism, current generation, transformers, and rectification as it pertains to the x-ray circuit and x-ray production.

Prerequisites: RADT 150, RADT 151, RADT 152, RADT 153, RADT 155, RADT 156, RADT 157, and RADT 158

Corequisites: RADT 251 and RADT 252

Prerequisites or corequisites:

Credits: 2

Lecture Hours: 2

Lab/Studio Hours:

Required Textbook/Materials:

Required:

1. Bushong, Stewart. Radiologic Science for Radiologic Technologists. 12th edition. 2021.

On-line Resources:

1. Selman, Joseph. Fundamentals of X-ray Physics and Radiobiology. 9th edition. 2009.

2. Bushong, Stewart. Radiologic Science for Radiologic Technologists Workbook. 12th edition. 2021.

3. Mosby on-line modules in Canvas.

4. Elsevier on-line modules on Elsevier.

5. Handouts.

Additional Time Requirements: For information on Brookdale's policy on credit hour requirements and outside class student work refer to [Academic Credit Hour Policy](#). Additional time may be required in the lab or other facilities. i.e. projects or research.

Additional Support/Labs:

See <https://www.brookdalecc.edu/academic-tutoring/>

Course Learning Outcomes:

1. Compare and contrast the characteristics and function of a proton, neutron, electron, element, compound, molecule and the energy levels and bonding properties of

- atomic structures.
2. Identify the components of electrical current: potential difference, currents, and resistance, parts of an electrical circuit and the characteristics of direct and alternating currents.
 3. Apply Ohm's law to calculate voltage, amperage, and ohms.
 4. Identify the uses of components and functions of primary and secondary sides of a circuit and label a diagram of a complete x-ray circuit.
 5. Describe conditions necessary for x-ray production. Compare and contrast the characteristics and function of a proton, neutron, electron, element, compound, and molecule and the energy levels and bonding properties of atomic structures.

Course Content:

Unit 1 – Structure of the Atom/Matter/Electrostatics
Unit 2 – Electrodynamics/Magnetism/Electromagnetism
Unit 3 – Motors/Generators/Transformers/Rectification
Unit 4 – X-ray Circuitry/X-ray Tubes/ X-ray Production

Department Policies:

Please see the Radiologic Technology Student Handbook

Grading Standard:

In addition to the Academic Progress Policy in the Brookdale Radiologic Technology Student Handbook the following policies apply to RADT 250.

1. Upon completion of the units as indicated on the course calendar, students will be given a written test based on the unit objectives. Unit grades will be determined as follows:

A	94-100
A-	90-93.99
B+	87-89.99
B	84-86.99
B-	81-83.99
C+	78-80.99
C	74-77.99
D	65-73.99
F	64 or below

2. The course grade will be derived as follows:

Homework (10) 5%
Quizzes on-line (5) 15%
Exam 1 25%
Exam 2 25%

Final Examination 30%
100%

3. All students are required to meet examination schedule requirements as stated on the course calendar. Any student who is unable to meet this schedule must speak personally to the instructor responsible for the examination prior to the exam deadline.
4. Students have the opportunity to review exams by contacting the instructor. Unit exams and quizzes may be reviewed for a one-week period following the examination.
5. The final examination is a comprehensive exam covering all course objectives.
6. Students may review the final examination by appointment during the first week of the long term after the examination is taken.
7. Students must achieve a course grade of 74%. Students who do not achieve a course grade of 74% will fail the course.

College Policies:

As an academic institution, Brookdale facilitates the free exchange of ideas, upholds the virtues of civil discourse, and honors diverse perspectives informed by credible sources. Our College values all students and strives for inclusion and safety regardless of a student's disability, age, sex, gender identity, sexual orientation, race, ethnicity, country of origin, immigration status, religious affiliation, political orientation, socioeconomic standing, and veteran status. For additional information, support services, and engagement opportunities, please visit www.brookdalecc.edu/support.

For information regarding:

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

Please refer to the [Student Handbook](#) and [Catalog](#).

Notification for Students with Disabilities:

Brookdale Community College offers reasonable accommodations and/or services to persons with disabilities. Students with disabilities who wish to self-identify must contact the Accessibility Services Office at 732-224-2730 (voice) or 732-842-4211 (TTY) to provide appropriate documentation of the disability and request specific accommodations or services. If a student qualifies, reasonable accommodations and/or services, which are appropriate for the college level and are recommended in the documentation, can be approved.

Mental Health:

24/7/365 Resources:

- Monmouth Medical Center Psychiatric Emergency Services at **(732) 923-6999**
- 2nd Floor Youth Helpline – Available to talk with you about any problem, distress, or hardship you are experiencing. Call or text at **888-222-2228** or visit the website at <https://www.2ndfloor.org/>

Faculty Counselors:

- Students who need to make an appointment with a faculty counselor can do so by calling 732-224-1822 (non-emergency line) during business hours. Faculty counselors are licensed mental health professionals who can assist students and refer them to other mental health resources.

Diversity Statement:

Brookdale Community College fosters an environment of inclusion and belonging. We promote a safe and open culture, encourage dialogue respecting diverse perspectives informed by credible sources, and uphold the virtues of civil discourse. We celebrate all identities with the understanding that ultimately, diversity, equity, and inclusion cultivate belonging and make us a stronger Brookdale community.

**The syllabus is intended to give student guidance in what may be covered during the semester and will be followed as closely as possible. However, the faculty member reserves the right to modify, supplement, and make changes as the need arise.*