

Bergen Community College  
Health Professions Division  
Radiation Therapy Technology Program

Course Syllabus  
RTT- 220 Radiation Therapy Practices II

**Course Description**

**RTT-220 Radiation Therapy Practices II** – This course is an exploration of cancer; its detection, diagnosis, correlation and prognosis. The focus of the course is on the management of neoplastic disease and its mechanism of spreading. Various laboratory experiments will be used to demonstrate the role of radiation therapy in the treatment of cancer.

3 lecture / 3 lab – 4 credits

Prerequisites: RTT 110, RTT 120

Co-requisites: RTT 210, RTT 230, RTT 221

Spring Semester

**Student Learning Objectives:**

As a result of meeting the requirements in this course, students will be able to:

1. Discuss the biology and pathophysiology of cancer.
2. Differentiate between surgical, medical and radiation oncology and the role of immunotherapy in the management of cancer.
3. Discuss cancer from a therapeutic perspective and demonstrate radiation treatment techniques:
  - A. Breast
  - B. Head and Neck
  - C. Hematopoietic System
  - D. Lymphoreticular System
  - E. Pediatric
  - F. Bone and soft Tissue
  - G. Female Reproductive System
  - H. Integumentary System
  - I. Endocrine System
4. Discuss the epidemiology and etiology of each disease site.
5. Explain detection, diagnosis, clinical presentation and patterns of spread for each disease site.
6. Demonstrate knowledge of histopathology and staging and grading classification for each disease site.
7. Discuss single and multiple treatment modalities relevant to each disease site.
8. Explain the process of simulation and treatment delivery and treatment side effects for each disease site.
9. Demonstrate 3-D simulation.
10. Discuss the role of radiation therapy in palliative care, AIDS and benign neoplasms.

11.	Differentiate between curative and palliative treatment applications
12.	Discuss common sites and therapeutic management of metastatic disease.
13.	Discuss the use of radiation for emergency treatment applications.
14.	Demonstrate basic knowledge of sectional anatomy.
15.	Develop critical thinking and problem solving skills to recognize and correct discrepancies in the treatment chart, equipment, immobilization device and treatment plan.
16.	Compare and contrast new technologies: IGRT, Respiratory Gating, SRS, SRT, SBRT, Proton Therapy and IMRT.

**Means of Assessment:**

The Student Learning Objectives (SLO) in this course are intended to be aligned with the accreditation requirements of The Joint Committee on Education in Radiologic Technology and the New Jersey Department of Environmental Protection regarding the practice of Radiation Therapy technology as it applies to the Radiation Therapist. These Student Learning Objectives are also correlated with the content specifications for the national registration examination in Radiation Therapy administered by The American Registry of Radiologic Technologists. Additional student learning objectives may be specified in particular units.

The major assessment types (means of assessment) utilized in this course are homework assignments, quizzes, laboratory modules, objective tests, and class participation.

**Course Content:**

Content is the second of a two-part sequence that is designed to provide the student with advanced concepts of treatment delivery and laboratory practice to maximize performance in the classroom as well as in the clinic.

**Course Website:**

**RTT 220 – Radiation Therapy Practices II** is a “web-enhanced” class. The class has its own website and each member of the class has an account for the website. The BCC online course management system is known as “Moodle”. This website will provide the student with review and assessment materials..

**Texts and/or Other Study Materials:**

All text books are available through the Bergen Community College Bookstore.

Washington, Charles M., Leaver, Dennis. Principles and Practice of Radiation Therapy. St. Louis, MO: Mosby Elsevier Publishing, Inc., 4<sup>th</sup>.ed. 2015. ISBN: 978-0-323-28752-4 (referred to as “W&L”)

Recommended:

Levy, Leia. Mosby’s Radiation Therapy Study Guide and Exam Review. St. Louis, MO: Mosby, Inc. 1<sup>st</sup> ed. 2011. ISBN 978-0-323-06934-2 ISBN-10: 0323069347

### **Course Requirements and Learning Assessment:**

A student’s final grade for the course is based primarily on his or her performance on the required work for the course (research paper, examinations and class participation).

#### **Quizzes** (15% of final grade)

Students are expected to be prepared for a quiz following each lecture topic. All quizzes will be administered on Moodle.

#### **Homework Assignments** (15% of final grade)

Homework assignments will be used to reinforce concepts and theories presented in the classroom. Homework may require some research. Assignments will typically be administered on Moodle.

#### **Laboratory Quizzes** (15% of final grade)

Laboratory quizzes will be used to reinforce the concepts and theories presented in the laboratory. These take-home quizzes may require some research. Quizzes will be collected, graded and returned. Students will be given one week for submission.

#### **Examinations** (50% of final grade)

Two tests will be administered electronically in class. Each test will be worth 15% of your final grade. The tests cover the major topics of the course. The test schedule will follow the classroom presentation and the content of the test will be based on the required textbook readings, classroom presentations and handouts. PowerPoint presentations and supplemental handouts are distributed in class and are available through Moodle. All tests are required. In the event that a test is missed, the student will be given a comparable test. A make-up test is at the discretion of the instructor of the course.

Additionally, two practicum tests will be administered in the laboratory. Each test will be worth 10% of your final grade. Each practicum will require an oral presentation and a proficiency demonstration.

#### **Laboratory Modules / Overall Classroom Participation** (5% of final grade)

Laboratory attendance is mandatory. Laboratory modules are to be completed by the instructor at each laboratory session. The laboratory serves as a prerequisite to clinical demonstrations and competencies. Laboratory module documentation must be completed before a student is eligible to participate in clinical demonstration and competency. In the event of an absence, the student is required to submit a three to four-page typed paper on the topic covered.

**Classroom Participation:**

In order to participate in particular lectures and discussions, all related reading and assignments must be completed prior to that class session. Please be advised that you must be present to participate, yet that alone does not constitute active participation.

The following behaviors will be utilized to assess class participation:

Positive Behaviors:

1. Attend class regularly and on time and not leave early.
2. Be well-prepared for class by doing assigned reading.
3. Participate appropriately with relevant comments, questions or answers to questions presented in class.
4. Show respect and value for the content of the course.
5. Take all online tests.

Negative Behaviors:

1. Being absent from or being late for class.
2. Leaving class early.
3. Walking out of and coming back into class.
4. Sleeping in class.
5. Devalue the content of the course.
6. Behaving inappropriately in class (e.g., acting silly, conducting private conversations in the back of the room, distracting behaviors such as eating, drinking or chewing gum in class; defacing classroom furniture; etc.)
7. Being impolite, rude, or discourteous to me or to your classmates.
8. Not being adequately prepared for class.
9. Speak without thinking – demonstrate a lack of reasoning and critical thinking skills.
10. Submit research paper late.
11. Be absent for testing.

Unacceptable behavior is at the discretion of the program. Disruptive behavior or inappropriate dress may result in dismissal from that class for the day and an unexcused absence.

**Grading Policy:**

The grading policy and course grade appeal policy of the program are stated in the Radiation Therapy Student Handbook. The program grading policy utilizes the standards of the American Registry of Radiologic Technologist national registry exam.

Letter Grade	Numerical Range	Conversion
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A	90% to 100%	Excellent
B+	85% to 89.9%	Very Good
B	80% to 84.9%	Good
C+	75% to 79.9%	Marginal / Acceptable
C	70% to 74.9%	Poor / Failing
I	Incomplete	
E	Unofficial withdrawal	
W	Official Withdrawal	
D / F	Does not apply to RTT courses	

There are no extra credit opportunities in this course.

### **Attendance Policy:**

**BCC Attendance Policy:** All students are expected to attend punctually every scheduled meeting of each course in which they are registered. Attendance and lateness policies and sanctions are to be determined by the instructor for each section of each course. These are to be established in writing on the individual course outline. Attendance will be kept by the instructor for administrative and counseling purposes.

**Radiation Therapy Program Attendance Policy:** Classroom attendance policy for the Radiation Therapy Program is stated in the Radiation Therapy Student Handbook. The student is responsible for adherence to this policy.

**Attendance Policy in this Course:** Students are expected to attend class regularly and punctually and for the full class period. Attendance will be taken at each class session. In the event of a late arrival, the student is expected to enter quietly without disturbing the class. In the event of an absence, it is the responsibility of the student to acquire the missed material. The attendance policy of this course will adhere to the attendance policy of the Radiation Therapy Program as stated in the Radiation Therapy Student Handbook.

Absences, lateness and early departures will diminish your overall performance in the course and, subsequently, will increase your risk of diminished performance on the ARRT national registry exam and the administration of responsible patient care. Additionally, the BCC Radiation Therapy Program provides employment assistance upon graduation from the program and ARRT registration; your classroom attendance behavior may be used by your instructor as an indicator to your employment attendance behavior.

### **Laboratory Policies and Procedures**

All students are afforded a laboratory experience concurrent with the didactic component of the program.

RTT 220 Radiation Therapy Practices II      3 hours

Labs are conducted at a clinical education site using energized radiation therapy equipment and computerized treatment planning systems. Students are required to maintain compliance

to all program policies and procedures as stated in the Radiation Therapy Student Handbook, Clinical Manual Section I and Clinical Manual Section II.

The laboratory experience is an integral and required component of the program. Attendance is required prior to clinical participation.

In the event of a missed lab, the student will be required to submit a 3-4 page typed paper demonstrating knowledge and understanding of the topic(s) demonstrated in the missed lab. In addition to foundational information on the topic, the paper must include a step-by-step sequential outline of the clinical procedure. The outline must include sufficient explanation of the procedure to assure that the student is adequately prepared to proceed to clinical demonstration and subsequent competence. The paper must adhere to standard format including double spacing and font no larger than 12.

### **Other College, Divisional, and/or Departmental Policy Statements**

The Radiation Therapy Program adheres to all Bergen Community College policies, including drug and alcohol use and smoking on campus, discrimination and harassment, rules and regulations governing conduct, rules governing academic integrity and acceptable use of information technology resources as stated in the BCC College Catalog – Policies.

The Bergen Community College Radiation Therapy Program adheres to a no cell phone policy in the classroom, laboratory and clinic.

### **Course Outline and Calendar**

**Note to Students:** The following Course Outline and Calendar is tentative and subject to change, depending upon the progress of the class.

<b>Week</b>	<b>Date(s)</b>	<b>Topics/Activities/Assignments</b>	<b>Readings</b>
			W&L Chapter(s)
1	Mon. Wed.	CT Simulation Breast	21/22 36
	Lab	CT Simulation	21/22
2	Mon. Wed.	Breast Breast	36 36
	Lab	Breast - tangents	36
3	Mon. Wed.	Head and Neck Head and Neck	31 31
	Lab	Breast – Supraclavicular and PAB	36
4	Mon. Wed.	Head and Neck Head and Neck	31 31
	Lab	Head and Neck – Immobilization devices	31
5	Mon. Wed.	Special Procedures Special Procedures	15 15

	Lab	Head and Neck – 3 field / IMRT	31
6	Mon. Wed.	Intensity-Modulated Radiation Therapy Particle Therapy	16
	Lab	Thorax – CT Simulation	
7	Mon. Wed.	Mid-term Examination Hematopoietic System	
	Lab	Major Digestive Glands – CT Simulation	
8	Mon. Wed.	Hematopoietic System Hematopoietic System	Handouts
	Lab	Mid-term practicum	
9	Mon. Wed.	Pediatric Neoplasms Pediatric Neoplasms	37 37
	Lab	TBI / Leukemia	
10	Mon. Wed.	Lymphoreticular Systems. Lymphoreticular Systems.	28 28
	Lab	Cranio-spinal Irradiation	37
11	Mon. Wed.	Bone and Soft Tissue Bone and Soft Tissue	27 27
		Hodgkin's Disease/ Lymphoma	28
12	Mon. Wed.	Female Reproductive System Female Reproductive System	34 34
		Male Pelvis / seminoma	35
13	Mon. Wed.	Integumentary System Integumentary System	38 38
	Lab	Female Pelvis / Brachytherapy	34
14	Mon. Wed.	Endocrine System / Ocular Benign Neoplasms / AIDS related neoplasms / Metastatic Disease	29
	Lab	Pituitary / Keloids / Heterotropic hip	29
15	Mon. Wed.	Review Final Exam	
	Lab	Final Laboratory Practicum	