

Common Course Outline
RTTT 113
Principles of Radiation Therapy II
3 Credits

The Community College of Baltimore County

Description

RTTT 113 – 3 Credits – Principles of Radiation Therapy II provides student with in depth knowledge of radiation protection, radiobiology, quality management, and other fundamental knowledge related to the Radiation Therapy practitioner.

3 credits

Pre-requisites: RTTT 111; Admission to the Radiation Therapy Program; this course is only offered in the spring semester

Co-requisites: RTTT 107 and RTTT 127

Overall Course Objectives

Upon completion of this course the student will be able to:

1. define the concept of As Low As Reasonably Achievable (ALARA);
2. describe the legal and ethical radiation protection responsibilities of radiation workers;
3. select the correct units of radiation for exposure, absorbed dose, dose equivalence, and radioactivity;
4. discuss the interrelationship between relative biological effectiveness and quality factors;
5. state the authority, boundaries and regulations of the state and national regulatory agencies;
6. compare the various methods used for personnel monitoring;
7. state the exposure limits for occupational and non-occupational individuals;
8. explain techniques used to reduce unnecessary dose to the patient;
9. develop an emergency action plan for equipment failure;
10. identify radiosensitive components of the cell;
11. differentiate between direct and indirect effects of ionizing radiation;
12. compare somatic and genetic effects of radiation;
13. describe factors influencing radiation response of cells and tissues;
14. discuss the Laws of Bergonie and Tribondeau;
15. interpret cell survival curves to determine radiosensitivity under numerous conditions;
16. differentiate between linear, nonlinear, threshold, and non-threshold dose response curves;
17. describe the 4 Rs of Radiobiology;
18. describe the clinical significance of $TD_{5/5}$ and $TD_{50/5}$
19. compare the relationship of time, dose, fractionation, volume, and site; and
20. describe the influence of chemotherapy and hyperthermia alone and in combination with radiation therapy.

Major Topics

- I. Radiation Protection
- II. Radiation Regulations
- III. Radiobiology
- IV. Radiation Safety
- V. Quality Assurance

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member but will include the following:

Students will take a midterm and a final exam
Students must pass their final exam with a 75% or higher
Students will complete weekly quizzes and assignments

Other Course Information

This course is a Radiation Therapy core course.
This course is part of a program sequence and offered in the spring only.

Date Revised: 02/25/12