

MASTER SYLLABUS

COURSE NUMBER AND TITLE:

RAD 380-3 Physics of Radiation Therapy

COURSE DESCRIPTION:

Includes a study of the physical principles and applications of radiation in therapy. Defines the nature of radiation, radioactivity, interactions with matter and different radiation therapy instrumentation. Review of basic radiation therapy principles for use in later courses.

COURSE OBJECTIVES:

1. Demonstrate an understanding of the basic mathematical functions and their application to radiation therapy.
2. Demonstrate an understanding of the different types of radiation production.
3. Demonstrate an understanding of theory and principles of operation of treatment units and imaging units.
4. Understand and calculate radiation attenuation and decay.
5. Demonstrate an understanding of the different types of radiation detectors.

COURSE OUTLINE:

PERCENTAGE:

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|--------------------------------------------|-----|
| 1. Math review. | 5% |
| 2. Characteristics of radiation. | 20% |
| 3. Radiation interactions with matter. | 20% |
| 4. Linear accelerator components. | 20% |
| 5. Attenuation coefficients and half-life. | 20% |
| 6. Radiation detection and measurement. | 15% |

MEANS OF STUDENT EVALUATION:

Grading Scale

- 93 - 100 = A
85 - 92 = B
77 - 84 = C
70 - 76 = D
0 - 69 = F

PREREQUISITES: Instructor approval.

TEXTBOOKS:

1. McDermott, P. N. (2010). The Physics and Technology of Radiation Therapy (1st ed.). Madison, Wisconsin: Medical Physics Publishing.
2. Washington, C. M., & Leaver, D. T. (2010). Principles and Practices of Radiation Therapy (3rd ed). St. Louis, MO: Mosby.