SECTION HEADING

RADT 2240: Principles of Radiobiology

Description

Principles of Radiobiology is designed to establish a basic knowledge of atomic structure and terminology, and provide an overview of the principles of radiation protection and interaction with living systems. Also presented are the nature and characteristics of radiation (i.e. its effects on molecules, cells, tissues, and the body as a whole), x-ray production, and the fundamentals of photon interactions with matter. Radiation health and safety requirements of federal and state regulatory agencies, accreditation agencies, healthcare organizations, and the responsibilities of the radiographer for patients, personnel and the public are also incorporated. Factors affecting biological response are presented including acute and chronic effects of radiation.

Credits

3

Prerequisite

RADT 1130 and BIOL 2202

Corequisite

None

Topics to be Covered

1. Radiation Protection

2. Radiation Types

3. Radiation Qualities and Units

4. Radiation Monitoring

5. Cell Biology

6. Radiation Effects

7. Dose Limits

Learning Outcomes

1. Identify and justify the need to minimize radiation exposure of humans.

2. Identify sources of radiation exposure.

3. Differentiate between somatic and genetic radiation effects as well as discuss specific diseases or syndromes associated with them.

4. Explain the objectives of a radiation protection program.

5. Identify dose limits for occupational and non-occupational radiation exposure.

6. Describe personnel monitoring devices, including applications, advantages and limitations for each.

7. Describe principles of cellular biology.

8. Demonstrate patient protection practices.

Credit Details

Lecture: 3

Lab: 0

OJT: 0

MnTC Goal Area(s): None