Miami Dade College

Course Description
RTE2571 | Principles of Computed Tomography | 3.00 credits

This course provides the radiologic technologist advanced imaging techniques of computed tomography. This introduction to CT scanning technology will include history and development, equipment, terminology, patient preparation and care, and the principles of image formation, acquisition, and production.

Course Competencies

Competency 1: The student will demonstrate knowledge of the history and evolution of computed tomography and the most common uses of CT scanning in medical imaging of Surgical Technology by:

1. Describing the common uses of CT scanning
2. Identifying the history and evolution of computed tomography
3. Explaining current trends and procedures in CT and how modifications are used for trauma and pathology

Competency 2: The student will demonstrate an in-depth description of major CT equipment components and the sequence of events from the application of electrical current to the radiographic tube to the image by:

1. Describing the major CT equipment components
2. Identifying various components of the CT control panel
3. Explaining the sequence of events from applying electrical current to the radiographic tube to the image

Competency 3: The student will demonstrate the methods of acquiring computed tomography images, the process of data acquisition, and what factors influence that process by:

1. Identifying the methods of acquiring CT images
2. Describing the process of data acquisition
3. Describing the steps for CT image reconstruction
4. Identifying post-processing techniques for image enhancement

Competency 4: The student will demonstrate the methods used to measure the patient dose and the role of the computed tomography technologist in reducing radiation exposure by:

1. Explaining the significance of measuring patient does
2. Explaining the procedures used to measure patient dose
3. Describing the CT technologist's role in reducing radiation exposure

Competency 5: The student will demonstrate (1) the methods used to determine image quality in computed tomography and factors that affect image quality, including CT image artifacts and the factors that influence artifacts, and (2) the tests associated with quality control programs by:

1. Describing the methods used to determine image quality in computed tomography and factors that affect image quality
2. Explaining how artifact affects image quality
3. Identifying tests associated with quality control programs
4. Identifying the proper position of a patient and the appropriate scan parameters for standard CT examinations

Learning Outcomes:

- Solve problems using critical and creative thinking and scientific reasoning
- Formulate strategies to locate, evaluate, and apply information
- Use computer and emerging technologies effectively