SPECIAL NOTE:
This brief syllabus is not intended to be a legal contract. A full syllabus will be distributed to students at the first class session.

TEXT AND SUPPLEMENTARY MATERIALS USED IN THE COURSE (if any):
Please check with the LCC bookstore http://www.labette.edu/bookstore for the required texts for this class.

COURSE NUMBER: RADI 127
COURSE TITLE: INTRODUCTION TO COMPUTED TOMOGRAPHY & CROSS-SECTIONAL ANATOMY
SEMESTER CREDIT HOURS: 2
DEPARTMENT: Radiography
DIVISION: Health Science
PREREQUISITE: RADI 104 Radiographic Procedures II
REVISION DATE: 03/2013

COURSE DESCRIPTION:
This course explores the basic computed tomography concepts for the entry level radiographer.

COURSE OUTCOMES AND COMPETENCIES:
Students who successfully complete this course will be able to with 86% accuracy:

1. Comprehend the historical development and identify the various generations of Computed Tomography imaging system.
   - Discuss the history of CT and its evolution to present day.
   - Discuss CT Generation Classifications.
   - Describe the general purpose of CT.
2. Explain the basic components, operations and processes for Computed Tomography.
   - Describe the data acquisition process.
   - Identify the components and functions of the data acquisition system.
   - Examine the process of image reconstruction for producing a CT image.
   - Discuss the equipment components associated with the image reconstruction.
   - Identify the terminology associated with the image reconstruction process.
   - Differentiate between raw data and image data during the image reconstruction process.
   - Differentiate between the methods and elements for scanning.
   - Explain the importance of Image Display for computed tomography imaging.
   - Review the purpose of the display monitors for the image display process.
   - Describe the common image display options and window settings.
   - Discuss the three general methods of Data Acquisition: Localizer Scan, Step & Shoot Scanning, and Helical Scanning.

3. Examine the factors that influence the Image Quality and Post Processing of Computed Tomography images.
   - Identify the scanning parameters directly associated with image quality.
   - Differentiate between Spatial and Contrast Resolution.
   - Review the factors affecting both Spatial and Contrast Resolution.
   - Discuss the affects of Spatial and Contrast Resolution on quality assurance of an image.
   - Identify the types of image artifacts associated with CT imaging.
   - Discuss the difference between reconstruction and image reformation of a CT image.
   - Identify the factors that degrade reformatted images.
   - Introduce imaging informatics as associated with CT imaging departments.
   - Discuss the process of Data Management with emphasis on PACS fundamentals.

4. Discuss patient and occupational radiation protection procedures for Computed Tomography.
   - Discuss the methods for reducing radiation dose to the patient and the growing concern.
   - Discuss the comparison of dose from CT with dose from Conventional Radiographic studies.
   - Recognize the technical factors that directly affect patient dose including pediatric technical considerations.
   - Identify strategies for reducing scatter radiation for both adult and pediatric imaging.
   - Discuss reducing occupational exposure.

5. Compare cross-sectional anatomy in the sagittal, coronal, and axial planes on Computed Tomography and Magnetic Imaging Resonance images of the chest, abdomen, pelvis, and head.
   - Identify Terms for Imaging Planes.
   - Recognize anatomical Structures in the different imaging planes.
   - Chest
   - Abdomen
   - Pelvis
   - Head