## INTRODUCTION TO COMPUTED TOMOGRAPHY

**Course Syllabus**

**Course Number:** RADT-A0199  
**OHLAP Credit:** No  
**OCAS Code:** None  
**Course Length:** 32 Hours  
**Career Cluster:** Health Science  
**Career Pathway:** Diagnostic Services  
**Career Major(s):** Radiologic Technologist

**Pre-requisite(s):** Content is designed to provide entry-level radiography students with the principles related to computed tomography (CT) scans.

**Textbooks:**
- *Principles of Radiographic Imaging* by R. Carlton and A. Adler, 5th Ed (2013)
- Reference Resources (not required)
  - *Computed Tomography for Technologists A Comprehensive Text* by L. Romans 2011 Lippincott Williams & Wilkins

**Online resources:**
- Blackboard™
- ASRT modules: CT Basics

**Course Objectives:**

| A. | Describe the components of the CT imaging system. |
| B. | Explain the functions of collimators in CT. |
| C. | List the CT computer data processing steps. |
| D. | Define the term “algorithm” and explain its impact on image scan factors and reconstruction. |
| E. | Define the terms “raw data” and “image data.” |
| F. | Describe the following terms in relation to the CT data acquisition process: Pixel, Matrix, Voxel, Linear attenuation coefficient, CT/Hounsfield number, Partial volume averaging, Window width (ww) and window level (wl), Spatial resolution, Contrast resolution, Noise, Annotation, Region of interest (ROI), |
| G. | Name the common controls found on CT operator consoles and describe how and why each is used. |
| H. | Identify the types and appearance of artifacts most commonly affecting CT images. |
| I. | Name the radiation protection devices that can be used to reduce patient dose in CT and describe the correct application of each. |
| J. | Describe the general purpose of commonly performed CT studies. |
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K. Discuss general radiation safety and protection practices associated with examinations in CT.

*All objectives are taken from the ASRT (American Society of Radiologic Technologists) curriculum © 2012*

### Teaching Methods:
The class will primarily be taught by the lecture and demonstration method and supported by various media materials to address various learning styles. There will be question and answer sessions over material covered in lecture and media presentations. Supervised lab time is provided for students to complete required projects.

### Grading Procedures:
1. Students are graded on theory and lab practice and performance.
2. Each course must be passed with eighty (80%) percent or better.
3. Grading scale: A=90-100%, B=80-89%
4. Career Major Grades established during coursework are a major criteria in successfully obtaining certification.

### Description of Classroom, Laboratories, and Equipment:
Tulsa Technology Center campuses are owned and operated by Tulsa Technology Center School District No. 18. All programs provide students the opportunity to work with professionally certified instructors in modern, well-equipped facilities.

### Available Certifications/College Credit
The student may be eligible to take state, national or industry exam after completion of the program.

### College Credit Eligibility:
All Tulsa Tech students (high school and adult) may have the opportunity to receive college credit upon completion of their program. Our College Relations office will work with students regarding the benefits of Prior Learning Assessments (PLA) toward an Associate of Applied Science (AAS) degree or a technical college certificate at area colleges. For more details call the College Relations office at 918.828.5000