Principles of Imaging
Course Syllabus

Course Number: RADT-0195
OCAS Code: None
Course Length: 60 Hours
Career Cluster: Health Science
Career Pathway: Diagnostic Services
Career Major(s): Radiologic Technologist

Pre-requisite(s): Content is designed to establish a knowledge base in factors that govern and influence the image production process.

Course Description: Content is designed to establish a knowledge base in factors that govern and influence the image production process.

Textbooks:

Online Resources
Blackboard

Course Objectives:
A. Discuss practical considerations in setting standards for acceptable image quality.
B. Assess radiographic exposure on radiographic images.
C. Analyze the relationships of factors that control and affect image exposure.
D. Analyze the relationship of factors that control and affect radiographic contrast.
E. Critique recorded detail on various radiographic images.
F. Analyze the relationships of factors affecting recorded detail.
G. Differentiate between size and shape distortion.
H. Perform calculations to determine image magnification and percent magnification.
I. Summarize the relationship of factors control and affect distortion.
J. Summarize the relationship of factors affecting exposure latitude.
K. Explain the rationale for using beam-limiting devices.
L. Describe the operation and applications for different types of beam-limiting devices.
M. Explain how beam filtration affects x-ray beam intensity, beam quality, and resultant patient exposure.
N. Describe the change in the half value layer (HVL) when filtration is added or removed in the beam.
O. Summarize the relationship of factors affecting scattered and secondary radiation.
P. Evaluate the effects of scattered radiation on the image.
Q. Compare grid types.
R. Describe grid maintenance.
S. Select the most appropriate grid for a given clinical situation.
T. Interpret grid efficiency in terms of grid ratio and frequency.
U. Summarize the factors that influence grid cutoff.
V. Evaluate grid artifacts.
W. Explain the use of standardized radiographic technique charts.
X. Explain exposure factor considerations involved in selecting techniques.
Y. Compare fixed kilovolt peak (kVp) and variable kVp systems.
Z. Apply mAs reciprocity to clinical simulations.
AA. Apply conversion factors for changes in the following areas: distance, grid, image receptors, reciprocity law, and 15 percent rule.

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%, C=70-79%, D=60-69%, F=50-59%.
4. Students wanting to take advantage of college credit/alliance agreements must maintain an 80% in their coursework.
5. 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.