MOHAWK VALLEY COMMUNITY COLLEGE, UTICA-ROME, NY

COURSE OUTLINE

1. COURSE DESCRIPTION:

**RT203 Radiographic Physics** C-2, P-0, CR-2

This course explores the basic concepts of the science and technology of x-ray imaging. Topics include the study of matter, energy, the electromagnetic spectrum, and ionizing radiation.

**Prerequisites:** RT101 Fundamentals of Radiography

**Corequisites:** RT204 Radiation Biology 2, RT205 Advanced Imaging Procedures/ Pathology, and RT207 Clinical Education Mastery.

1. STUDENT LEARNING OUTCOMES

**Upon completion of this course the student will be able to:**

1. Identify and apply mathematical formulas to solve problems in content areas for the course.
2. Define terms relating to matter and energy.
3. Define and discuss the principles of electrostatics, electrodynamics, magnetism, and electromagnetism.
4. Describe and discuss the difference in construction and principles of operation for motors and generators.
5. List the types of transformers; describe their function, construction, and principles of operation.
6. Explain the process/principle of rectification. Distinguish between half wave and full wave rectification. State the advantages and disadvantages of each.
7. Identify component parts of the standard radiographic tube; explain the principle of operation and function of parts; interpret tube rating charts and anode cooling curves.
8. Identify component parts of the x-ray circuit; explain their function and principles or operation. Differentiate between single phase, 3 phase and high frequency circuits. Identify the wave form generated and tube loading specifics for each.
9. Explain the imaging process for CR and DR.
10. Identify equipment components and their function for CR and DR.
11. List and define terms used in CR and DR.
12. MAJOR TOPICS:
13. Mathematical Units
14. Energy
15. Matter
16. Electrostatics
17. Electrodynamics
18. Magnetism
19. Electromagnetism
20. Motors and Generators
21. Transformers; Rectification
22. Radiographic Tube
23. X-ray Circuit
24. Computed Radiography
25. Digital Imaging