Dakota County Technical College

MDAS 1250: Fundamentals of Radiographic Imaging

A. COURSE DESCRIPTION

Credits: 2

Lecture Hours/Week: 2

Lab Hours/Week: *.*

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course is designed to: 1. Prepare students for the MN State Examination for X-ray Operators. 2. Give students an overview of radiology technology and the importance it plays in the medical field. 3. Provide students with the necessary information to understand the following: Medical terminology as related to the specialty of radiology, the design and proper use of x-ray equipment, the principles of radiation safety with protection to both the operator and the patient, the importance of good, safe working habits. 4. Acquaint the students with commom radiographic procedures. Prerequisites: None.

B. COURSE EFFECTIVE DATES: 10/07/1998 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

D. LEARNING OUTCOMES (General)

1. Apply the Inverse Square Law and calculate radiation intensity
2. Define and explain radiographic contrast and density as they relate to the radiographic image
3. Define effective-dose equivalent and annua occupational and non-occupational EDE limits
4. Define ionizing radiation
5. Describe history and development of the field of radiologic technology
6. calculate radiation intensities
7. describe ALARA program
8. describe formation of the latent image
9. describe functions of the major parts of an x-ray machine
10. describe fundamental principles of radiation physics
11. describe interactions of radiation with intensifying screens
12. describe production of the manifest image
13. describe production of x-rays
14. describe radiation effects to the human body and embryo-fetus
15. describe x-ray filtration
16. distinguish the units of radiation exposure
17. distinguish types of intensifying screens
18. distinguish types of radiographic procedures
19. distinguish types of x-ray exposure factors
20. distinguish types of x-ray interactions with matter
21. Explain differences between genetic and somatic effects of ionizing radiation
22. Explain how mA, kVp,time,SID and heel-effect control affect contrast/density of radiographic image
23. Identify radiological terms and proper usage
24. identify 4 factors influencing the quantity of x-rays produced
25. identify and apply the exposurs factors of mA, time, kVp and distance to related procedures
26. identify crucial Mn laws governing the use of ionizing radiation
27. identify major components of an x-ray processor
28. identify major parts of an x-ray machine
29. identify the major components in x-ray film
30. identify types of film artifacts
31. Identify various beam- limiting devices and explain importance in reducing scattered radiation
32. identify various chemical solutions found in x-ray processing
33. interpret tube rating charts
34. list 12 basic rules for radiation protection for the occupational worker
35. list 7 crucial properties of x-rays
36. list 8 rules for radiation protection to the patient against overexposure
37. list components of a quality assurance program
38. list darkroom quality control tests
39. list factors affecting the quality of an x-ray beam
40. perform basic positioning, set-up technique factors and demo film critique knowledge of common exams

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted