

Minnesota State College Southeast

BMET 2224: Biomedical Equipment II

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 2

Lab Hours/Week: 2

OJT Hours/Week: *.*

Prerequisites:

This course requires the following prerequisite

BMET 2221 - Introduction to Biomedical Equipment (Minimum grade: 3.0 GPA Equivalent)

Corequisites: None

MnTC Goals: None

This course focuses on the various types of equipment used in the hospital setting. These include waveform display devices, fiber optics and lasers, computers, networking, and the Pak system, also radiology and nuclear equipment. (Prerequisites: Intro to Biomed Equipment) (3 credits: 2 lecture/1 lab)

B. COURSE EFFECTIVE DATES: 07/01/2010 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

D. LEARNING OUTCOMES (General)

1. Describe safety practices for laser systems
2. Describe the interrelationship between computers and communications systems
3. Identify computer interfaces
4. Describe worldwide numbering systems
5. Identify network equipment
6. List the main functions of an X-ray machine
7. Describe the applications of X-ray machines
8. State the diagnostic (measurement) function of an X-ray machine
9. State the different categories of X-ray machines (e.g.: still picture, continuous picture and motion, picture)
10. List the dangers associated with X-rays
11. Name the units used for measuring radioactivity (e.g.: curie, Roentgen, Dose rate)
12. Explain the terms used in the study of radiology (e.g.: gamma, beta and alpha rays, nuclear radiation, etc.)
13. Explain how the X-ray tubes work
14. Discuss the safety precautions associated with the handling of X-ray tubes
15. List common problems/faults of X-ray tubes
16. Sketch the circuit diagram of an X-ray machine
17. Describe the current rules for radiation safety required in medical equipment maintenance and use
18. Describe the current rules for safety in the maintenance and use of medical laser equipment
19. Describe chemical rules commonly required for medical equipment maintenance personnel
20. Explain why kidney failure requires hemodialysis treatment
21. State the functions of the dialysis machine
22. Sketch the main function blocks of a dialysis machine (e.g.: power supply, pressure monitor, blood pump, temperature system, bath delivery system, drain system, circulating system and control panel)
23. State the special safety precautions associated with the wet environment of a dialysis machine (e.g.: magnetically coupled motor shaft impeller system, ground fault interrupters)
24. State some of the common problems with dialysis machines
25. List a weekly maintenance schedule for a dialysis machine
26. Describe requirements management

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

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted