Minnesota State College Southeast

BMET 2221: Introduction to Biomedical Equipment

A. COURSE DESCRIPTION
   Credits: 3
   Lecture Hours/Week: 2
   Lab Hours/Week: 2
   OJT Hours/Week: *.*
   Prerequisites: None
   Corequisites: None
   MnTC Goals: None

   This introductory course begins with a brief overview of the human body. There will be special focus on
   the heart and circulatory system. Biomedical instrumentation and measurement will include information
   on electrodes, sensors, transducers, bioelectric amplifiers, electrocardiographs and other cardiovascular
   devices. (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. Demonstrate proper use of common biomedical test equipment
   2. Define electrode
   3. Describe the function of the EKG machine
   4. List basic care/maintenance of procedures of EKG machine
   5. Describe transducer
   6. Describe types of transducers used in biomedical instrumentation
   7. List units of transducer sensitivity
   8. Sketch electrical configuration of different transducers
   9. List different types of electrodes and function
   10. Describe impedance mismatches between electrodes
   11. Describe function of biomedical amplifier
   12. Describe different configurations of biomedical amplifier
   13. State principles of operation of isolation amplifier
   14. Describe operation of op amp
   15. Define terms used with biomedical amplifiers
   16. Describe calibration of biomedical equipment
   17. List test equipment commonly used
   18. Install fittings on cable ends
   19. Identify major body systems
   20. Describe function of body systems
   21. Describe signals at equipment interface points
   22. Describe function of medical oscilloscope
E. Minnesota Transfer Curriculum Goal Area(s) and Competencies
   None

F. LEARNER OUTCOMES ASSESSMENT
   As noted on course syllabus

G. SPECIAL INFORMATION
   None noted