

**APPROVED COURSE OUTLINE**

**Credit(s) 3.00**  
**Contact Hours 47.00**  
**Effective Term: Fall 2015 (505)**

**ETS 1412C**

**Biomedical Technology and Techniques**  
**Engineering and Building Arts Department**

Requisites:

Prerequisite: EET 1084C

Course Description:

This course, designed to introduce the students to the hospital, biomedical equipment manufacturers and the contract maintenance organizations, emphasizes the organizational structure of the hospital and identifies the role of the Biomedical Equipment Technician (BMET) within this framework, with particular emphasis on instrument critiques, electrical safety standards, and new products.

Course Topics:

- None

Learning Outcomes and Objectives:

**1. Students will be able to determine and follow identified safety procedures by:**

- a. researching, identifying and documenting public address alerts and codes needed to respond to emergencies.
- b. investigating, analyzing and recognizing requirements and appropriate procedures needed to ensure public and employee safety in a healthcare facility.
- c. recognizing, describing and applying electrical safety requirements and national standards.
- d. determining, mitigating and documenting hazards in and around work areas.

**2. The student will be able to install, operate and maintain biomedical equipment by:**

- a. analyzing and recognizing procedures needed for new equipment receiving, testing and installation.
- b. inspecting, testing and documenting that equipment installed or repaired by third party is configured, and performs to users' functional and safety requirements.
- c. determining and performing scheduled preventative maintenance that meets organizational or regulatory requirements .
- d. researching, documenting, and applying regulatory compliance, accreditation requirements and organizational healthcare standards.
- e. performing and documenting medical device inspections using required equipment, forms and online documentation systems.

**3. The student will be able to apply their understanding of biomedical equipment in both a laboratory and hospital environment by:**

- a. determining and using appropriate methods of testing, troubleshooting, repairing and calibrating sensors and electrodes.
- b. identifying, evaluating and using appropriate methods of testing, troubleshooting, repairing intravenous pumps and other pumps.
- c. determining and using appropriate methods of testing, trouble shooting and repairing blood pressure monitors.
- d. examining, troubleshooting, calibrating and repairing patient monitors.

**4. The student will be able to apply education with real-life, hands-on experience in an actual work environment by:**

- a. demonstrating procedures, documentation and knowledge of medical device troubleshooting and repair in a skills based test.
- b. examining, testing, troubleshooting, calibrating and repairing an EKG.

**5. The student will be able to practice a variety of healthcare technology management responsibilities including; equipment safety; inspection and maintenance procedures; troubleshooting and repair; medical device acceptance testing and incoming inspection by:**

- a. researching, documenting and following quality assurance processes needed for quality assurance checks of third party repairs.
- b. determining and following systematic, measurable, and traceable methods of work order management.
- c. researching, determining, documenting and following inspection and maintenance procedures that ensure patient safety and follow organizational policies and regulating agency requirements.

Criteria Performance Standard:

Upon successful completion of the course the student will, with a minimum of 70% accuracy, demonstrate mastery of each of the above stated objectives through classroom measures developed by individual course instructors.

Representative Textbooks:

• Textbook(s):

1. **Recommended** - Christie, Barbara. *Introduction to Biomedical Instrumentation: The Technology of Patient Care* , ed. Cambridge University Press, 2009

Relevant Dates:

C&I Approval: , BOT Approval: , Effective Term: Fall 2015 (505)

History of Changes:

C&I Approval: , BOT Approval: , Effective Term: Fall 2015 (505)

Related Programs:

1. Engineering Technology Associate in Science (ENG-AS) (505) (Active)
2. Engineering Technology Associate in Science (ENG-AS) (520) (Pending)

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