



Western Technical College

## 10605208 Advanced Bio-Medical Internship

### Course Outcome Summary

#### Course Information

<b>Description</b>	In a working clinical environment, mentored by professional biomedical technicians, students will practice typical HTM (Healthcare Technology Equipment) activities. These activities will include: observation of or assistance to working technicians, investigation/maintenance/repair of medical equipment, professional documentation of activities, and adherence to standard practices. Students will also prepare for a CBET (Certified Biomedical Equipment Technician) practice exam focusing on solidifying program knowledge base in electronics, codes/standards/safety practices, computers/networking, anatomy/physiology, medical equipment, communications, and HTM problem solving.
<b>Career Cluster</b>	Science, Technology, Engineering and Mathematics
<b>Instructional Level</b>	Associate Degree Courses
<b>Total Credits</b>	3
<b>Total Hours</b>	162

#### Pre/Corequisites

Prerequisite	10605203 On-Site BioMedical Clinical Experience 1
Prerequisite	10660132 Digital Applications
Prerequisite	10605201 Healthcare Systems & Tech Troubleshooting

#### Textbooks

No textbook required.

#### Success Abilities

1. Cultivate Passion: Enhance Personal Connections
2. Cultivate Passion: Expand a Growth-Mindset
3. Cultivate Passion: Increase Self-Awareness
4. Live Responsibly: Develop Resilience
5. Live Responsibly: Embrace Sustainability
6. Live Responsibly: Foster Accountability
7. Refine Professionalism: Act Ethically
8. Refine Professionalism: Improve Critical Thinking
9. Refine Professionalism: Participate Collaboratively
10. Refine Professionalism: Practice Effective Communication

## **Program Outcomes**

1. Manage medical equipment and systems
2. Identify the function and operation of various types of imaging equipment
3. Problem-solve electronic circuits and systems
4. Demonstrate a competency with computers and networks used in medical equipment
5. Apply principles of anatomy, physiology, and medical terminology
6. Demonstrate safety precautions and practices with medical equipment
7. Demonstrate professionalism

## **Course Competencies**

### **1. Work in a setting related to Medical Technology Equipment independent of instructor.**

#### **Assessment Strategies**

- 1.1. Host site feedback
- 1.2. Self-evaluation
- 1.3. Attendance at Host Site (84 hours minimum)

#### **Criteria**

*You will know you are successful when*

- 1.1. You complete a minimum of 84 of 120 hours at your internship site to pass the course.
- 1.2. You follow host site guidelines to host satisfaction
- 1.3. You cooperate with host site staff to their satisfaction

#### **Learning Objectives**

- 1.a. Attend internship at a host site
- 1.b. Complete all required intern orientation at host site
- 1.c. Adhere to site guidelines
- 1.d. Interact with site staff and follow their directions

### **2. Demonstrate professionalism at internship site.**

#### **Assessment Strategies**

- 2.1. Host site feedback
- 2.2. Self-evaluation

#### **Criteria**

*You will know you are successful when*

- 2.1. You arrive on time to scheduled work days or make alternate arrangements to the host's satisfaction
- 2.2. Your dress is approved of by host site
- 2.3. You actively participate in host site activities to the host's satisfaction
- 2.4. You manage your time at host site to host's satisfaction
- 2.5. You adhere to HIPAA requirements if applicable for host site
- 2.6. You effectively interact with internship personnel to host's satisfaction
- 2.7. You interact with all internship personnel to host's satisfaction
- 2.8. You are honest and ethical in all internship activities to host's satisfaction

#### **Learning Objectives**

- 2.a. Adhere to expected professional work ethic of attendance, dress, engagement, and time management
- 2.b. Interact in a team environment
- 2.c. Work within a diverse environment
- 2.d. Follow ethical practices

### **3. Adhere to workplace requirements.**

#### **Assessment Strategies**

- 3.1. Host site feedback
- 3.2. Self-evaluation
- 3.3. Classroom Assignments
- 3.4. Written Assessments

#### **Criteria**

*You will know you are successful when*

- 3.1. You follow safety practices to satisfaction of host site
- 3.2. You follow HIPAA guidelines if applicable to host site
- 3.3. You follow SDS requirements as appropriate
- 3.4. You dispose of or recycle batteries and other substances in an approved of manner at host site
- 3.5. You behave in a manner appropriate to workplace to host satisfaction

#### **Learning Objectives**

- 3.a. Review safety guidelines
- 3.b. Review HIPAA guidelines
- 3.c. Review materials handling guidelines
- 3.d. Review proper behavior for workplace

### **4. Apply medical technology through professional interactions.**

#### **Assessment Strategies**

- 4.1. Host site feedback
- 4.2. Self-evaluation
- 4.3. Classroom Assignments
- 4.4. Written Assessments

#### **Criteria**

*You will know you are successful when*

- 4.1. You obtain information about equipment encountered at internship site by using resources such as technical documentation, interaction with internship site personnel, and research sources
- 4.2. You use correct terminology to the satisfaction of the host site
- 4.3. You identify the healthcare application for encountered medical devices
- 4.4. You explain the function of the medical devices at the host site
- 4.5. You explain how encountered medical devices and their accessories interact with the patient including any safety issues

#### **Learning Objectives**

- 4.a. Investigate medical devices encountered while shadowing or working on equipment at internship site

### **5. Perform BMET/HTM medical equipment maintenance activities.**

#### **Assessment Strategies**

- 5.1. Host site feedback
- 5.2. Self-evaluation

- 5.3. Classroom Assignments
- 5.4. Written Assessments

### **Criteria**

*You will know you are successful when*

- 5.1. You seek appropriate assistance from host site personnel while carrying out assigned duties
- 5.2. You demonstrate the ability to think critically while carrying out internship activities to host sites satisfaction
- 5.3. You adhere to manufacturers' documentation and site specific procedures or AEMs for maintaining medical devices to host sites satisfaction
- 5.4. You operate medical devices correctly in the performance of maintenance activities
- 5.5. You perform maintenance activities on encountered medical devices to host site's satisfaction
- 5.6. You verify proper function of encountered medical devices by using appropriate test equipment to host sites satisfaction
- 5.7. You correctly use appropriate hand tools while performing maintenance activities on medical equipment to host sites satisfaction
- 5.8. You correctly adhere to safe and industry standard practices with the electronics while performing maintenance activities on medical equipment to host sites satisfaction if applicable
- 5.9. You use computers as required for performance of maintenance activities on medical equipment
- 5.10. You verify your activities meet with host site approval

### **Learning Objectives**

- 5.a. Participate in training provided by internship site on medical devices and activities
- 5.b. Assist in troubleshooting and repair activities at host site as requested
- 5.c. Ask questions of internship site personnel to clarify any areas of uncertainty before proceeding with assigned tasks
- 5.d. Carry out maintenance activities on medical devices as instructed by internship site
- 5.e. Utilize manufacturers' documentation and site specific procedures or AEMs for maintaining medical devices
- 5.f. Utilize test equipment for maintaining medical devices
- 5.g. Utilize hand tools while maintaining medical devices
- 5.h. Utilize electronics skills while maintaining medical devices if applicable
- 5.i. Utilize computers while maintaining medical devices if applicable

## **6. Demonstrate critical thinking.**

### **Assessment Strategies**

- 6.1. Host site feedback
- 6.2. Self-evaluation
- 6.3. Classroom Assignments
- 6.4. Written Assessments

### **Criteria**

*You will know you are successful when*

- 6.1. You demonstrate an understanding of shadowing activities and equipment by asking and answering questions appropriately during the shadowing activity at host site
- 6.2. You locate appropriate specifications on medical devices encountered by using technical manuals, host site personnel, or research
- 6.3. You Interpret device specifications to determine if medical devices tested are operating correctly
- 6.4. You decide if a medical device passes all inspections and evaluations to be verified by host site personnel
- 6.5. You identify issues that require correction on medical devices to be verified by host site personnel
- 6.6. You pursue corrective actions approved of by internship staff

### **Learning Objectives**

- 6.a. Participate in shadowing activities at host site
- 6.b. Participate in maintenance of medical equipment at host site
- 6.c. Utilize documentation on select medical devices
- 6.d. Obtain specifications for select medical devices
- 6.e. Utilize specifications for select medical devices during testing procedures
- 6.f. You collaborate with internship staff on troubleshooting activities to determine problems in medical

- devices if available
- 6.g. You collaborate with internship staff on selecting corrective activities for medical equipment deemed to be in need of repair if available

**7. Document internship activities in a professional manner.**

**Assessment Strategies**

- 7.1. Host site feedback
- 7.2. Self-evaluation
- 7.3. Classroom Assignments
- 7.4. Written Assessments

**Criteria**

*You will know you are successful when*

- 7.1. You submit an accounting of every day's on-site activities as verified by host site in a timely manner
- 7.2. You complete documentation of activities at internship site as instructed to site personnel satisfaction

**Learning Objectives**

- 7.a. Submit a log of internship site activities
- 7.b. Adhere to intern site documentation instructions

**8. Prepare for entry level BMET/HTM profession.**

**Assessment Strategies**

- 8.1. Classroom Assignments
- 8.2. Written Assessments

**Criteria**

*You will know you are successful when*

- 8.1. You read or watch regularly assigned technical articles and webinars.
- 8.2. You summarize information from your technical reading or webinars in short commentaries, discussions, or reports
- 8.3. You describe the mission of industry organizations obtained by visiting their websites
- 8.4. You participate in CBET practice
- 8.5. You complete review worksheets
- 8.6. You pass a CBET practice test with a 50% or higher score

**Learning Objectives**

- 8.a. Subscribe to professional journals and webinars.
- 8.b. Report findings from professional journals and webinars
- 8.c. Investigate professional organizations and industry clearing houses of information
- 8.d. Review aspects of Anatomy and Physiology and related medical terminology
- 8.e. Review aspects the codes and standards for public safety applying to the healthcare industry
- 8.f. Review aspects of Fundamentals of Electricity and Electronics
- 8.g. Review aspects of Healthcare Technology Function and operation
- 8.h. Review aspects of Healthcare technology problem solving
- 8.i. Review aspects of Healthcare Information Technology
- 8.j. Review aspects of the sciences as related to medical technology