

LEARNING OBJECTIVES

1. Provide a basic understanding of medical and technical concepts, patient care equipment and technology principles, application and proper operation, common problems and solutions, patient safety issues, maintenance, and management of the technology.
2. Provide a methodology for improving the safety and cost-effectiveness of common medical devices through a program of healthcare technology management.
3. Help students better communicate with other hospital staff involved with medical devices, administration, and equipment vendors.
4. Develop the student's interest, and prepare them for further study and more advanced application of the principles.

REQUIREMENTS

- Highly preferred: Associate degree in engineering or electronics; Bachelor's degree in Engineering and three years experience working in healthcare capacity with at least one year maintaining, calibrating, and/or repairing medical equipment.
- Minimum: High school graduation with courses in biology and physics and post high school technical school diploma.
- Candidates must have the support of their work institution.
- Access to a computer with Internet, browsing, with the capacity to use digital files and email.
- Commitment to meet all the programmed activities and completing 204 hours of the course, with guidance and support with the assigned working group and tutor. A minimum of eight (8) hours per week must be dedicated to the weekly the various synchronous and asynchronous activities, with constant delivery of various group or individual assignments or exercises.

AUDIENCE

Clinical and technical staff working in healthcare who need to utilize or support medical devices in acute patient care; staff with responsibilities for medical equipment planning or life cycle management; students or adult learners who want to know more about the exciting area of medical equipment and ongoing management and support to enhance patient care and improve patient safety; career changers moving from a technical, medical or other field into the rapidly growing area of biomedical technology- application, support, and management.

APPLICATION AND ENROLLMENT

The call for applications process, request, selection and enrollment is done online on the portal of the Virtual Campus of Public Health homepage (www.campusvirtualsp.org/?q=en). By clicking the tab "Call for applications" you will find course information, the registration link and the application form. Candidates must meet the aforementioned qualifications and must complete their online documentation within the established period (30 August, 2014); for this you must first register/create an account on the Virtual Campus.

The selection of participants is done between PAHO country offices in the Region of the Americas and the general coordination of the course. Limited spaces for the course are available.



Department of Health Systems and Services
(HSS)

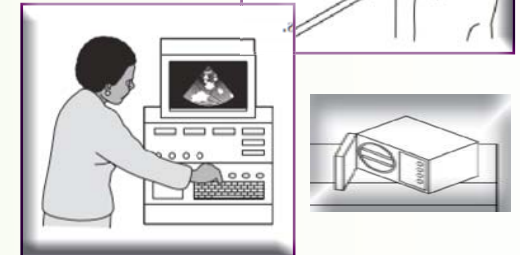
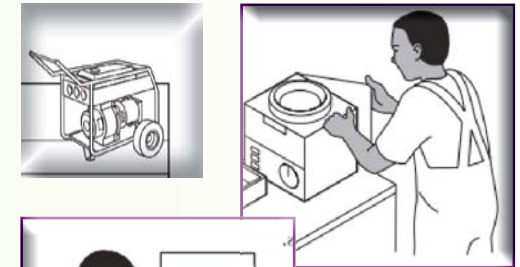


Virtual Campus for Public Health
(VCPH)
www.campusvirtualsp.org



Virtual Course

INTRODUCTION TO BIOMEDICAL TECHNOLOGY



**22 September, 2014
to 25 April, 2015**

**(Break - 20 December, 2014
to 31 January, 2015)**

BACKGROUND AND DESCRIPTION

Medical devices and systems have rapidly expanded in healthcare. This has resulted in longer life spans, a better quality of life, and cure and control of disease. Concurrent with this expansion has been an increase in healthcare costs and safety concerns.

There exists a need to manage technology to improve cost-effectiveness, patient safety, and allow for the availability of reliable, high quality equipment for patient care. Healthcare technology management (HTM) is a “cradle-to-grave” approach to help manage technology from the point of new technology introduction into the healthcare marketplace to the last stage where the device is retired. At the healthcare facility level, there is a need for staff to act on application, operational, service, and safety issues. This not only enhances the quality, but greatly reduces the life cycle cost of technology.

This course is an introduction into patient care technology—the environment, a background review of the human body and technical principles—and a specific focus on medical devices commonly found at the bedside in intensive care units.

The outcomes of technology management and this course will include: A better understanding of the principles, operation, and common problems/solutions related to patient care equipment technologies; Hospital-based staff will recognize safety problems before they adversely affect patients; and, Patient care will be improved while better utilizing healthcare dollars for areas of need- medications, staffing, facilities, etc.

COURSE PURPOSE

Improve information management and contribute to decision making related to technology for the attention, care and patient safety.

CALENDAR AND DURATION

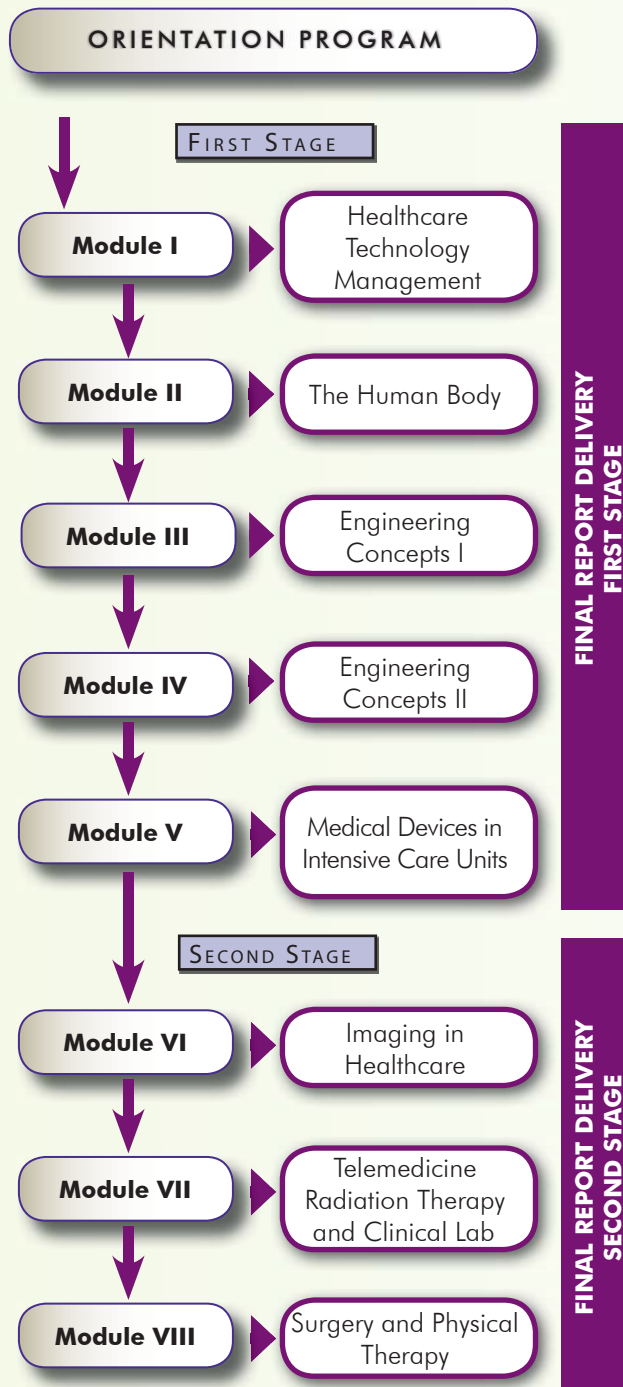
22 September, 2014 to 25 April, 2015
(Break - 20 December, 2014 to 31 January, 2015)

208 hours - 26 weeks - approximately 6 months

CUTT OFF DATE FOR ONLINE APPLICATIONS

30 August, 2014

COURSE STRUCTURE



COURSE CONTENT

FIRST STAGE: PATIENT CARE EQUIPMENT TECHNOLOGY

Module I - Healthcare Technology Management

Healthcare Technology Overview; the Environment of Care; Regulations; Quality Assurance and Preventative Maintenance; Preventing and Resolving Equipment Problems

Module II - The Human Body

Overview of the Human Body; Medical Terminology; Cardiovascular System; Respiratory System; Nervous System

Module III - Engineering Concepts I

Measurement Principles; Mathematics Principles; Mechanical Concepts; Optical Concepts; Electrical Concepts; Computer Concepts

Module IV - Engineering Concepts II

Transformers and Motors; Battery Systems; Electrical Power Distribution Systems; Semiconductors; Amplifiers; Digital Electronics; Power Supplies

Module V - Medical Devices in Intensive Care Units

Electrocardiography (ECG); Blood Pressure Monitoring; Pulse Oximetry; Apnea Monitoring; Fetal Monitoring; Defibrillators; External pacemakers; Infusion Therapy Devices; Ventilators

SECOND STAGE: ADVANCED TECHNOLOGY IN HEALTHCARE

Module VI - Imaging in Healthcare

Image Quality; Radiography; Fluoroscopy; Computed Tomography (CT); Nuclear Medicine (NM); Magnetic Resonance Imaging; Ultrasound; Medical Imaging Networks

Module VII - Telemedicine Radiation Therapy and Clinical Lab

Telemedicine; Electronic Health Record/Medical Device Interoperability; Radiation Therapy Equipment (RT); Basic Clinical Lab Equipment; Advanced Clinical Lab Equipment

Module VIII - Surgery and Physical Therapy

Surgical Systems: Minimally invasive/ Robotic; Surgical Systems: Electro surgery; Surgical Systems: Lasers; Physical Therapy Equipment