

Registration Form

Name (Dr./Mr./Mrs./Ms.) _____

Title _____

Email address _____

Name (Dr./Mr./Mrs./Ms.) _____

Title _____

Email address _____

Company name _____

Company address _____

City/State/Zip _____

Company phone () _____ Company fax () _____

Please register me (us) for the Medical Instrumentation and Physiology Short Course.

Call me with more information

Check enclosed (payable to MSOE)

Please enclose in envelope and mail to:

Milwaukee School of Engineering
Applied Technology Center
1025 N. Broadway
Milwaukee, WI 53202-3109

Invoice me (PO# _____)

Call me for credit card information
(We accept Visa or Mastercard only)

- or -

Register online at
www.msoe.edu/seminars

Short Course in Medical Instrumentation and Physiology

The only one of its kind in the country, this intense, four and one-half day seminar covers the theory, operation, clinical use, and underlying physiological principles associated with a variety of diagnostic and therapeutic medical devices routinely used in hospitals. Particular emphasis is given to the application and intrinsic hazards associated with many of these devices. Applicable codes, standards, and the essential elements associated with medical equipment maintenance and management programs are also covered. Hands-on laboratory exercises and equipment demonstrations are also used to reinforce key concepts. This course also serves as a great refresher opportunity for those attendees preparing for the CBET or CCE certification exam.

Who Should Attend?

While this course is directed at biomedical equipment technicians and clinical engineers relatively new to the maintenance and support of medical instrumentation within a health care environment, anyone with an interest in medical instrumentation will find this course beneficial.

Seminar Objectives

Upon completion of the seminar, participants should be able to:

- Understand the operation, application and underlying physiological principles associated with a variety of diagnostic, therapeutic and analytical medical devices used routinely in hospitals.
- Know the basic electrical and electronic components and circuit behavior.
- Understand applicable codes, standards and the intrinsic hazards associated with many of these devices.

REGISTER ONLINE AT www.msoe.edu/seminars

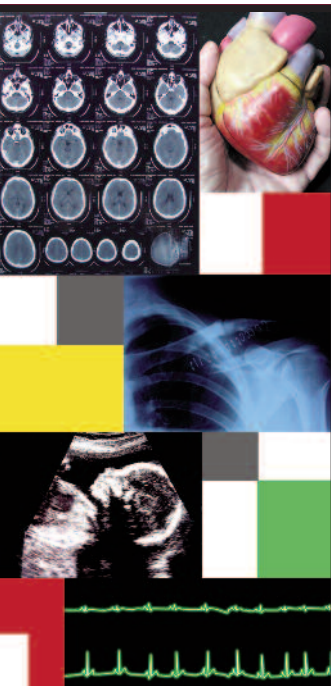


Applied Technology Center™
Milwaukee School of Engineering
1025 North Broadway
Milwaukee, WI 53202-3109

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“This seminar was incredible in that technology and physiology were covered in the same lecture – so far I have been unable to locate such course work.”

Theresa Lord
ARAMARK Healthcare
Management Services



2012 Short Course in Medical Instrumentation and Physiology



Applied Technology Center™
Professional Education
www.msoe.edu/seminars
Milwaukee School of Engineering



Medical Instrumentation and Physiology

This seminar covers the operation, application and underlying physiological principles associated with a variety of diagnostic, therapeutic and analytical medical devices used routinely in hospitals. A review of basic electrical and electronic components and circuit behavior is also woven throughout the course. Applicable codes, standards and the intrinsic hazards associated with many of these devices also will be addressed.

Dates

Monday - Friday,
Aug. 13 - 17, 2012

Cost

Fee: \$2,240
Early Registration by July 6, 2012: \$2,040
Multiple Concurrent Registrations: \$1,840
(per person for two or more attendees from the same organization)
Fee includes all handout materials, graduation luncheon and break refreshments.

Continuing Education Units: 2.7

Lodging

We recommend the Hyatt Regency Milwaukee for your overnight stay, which is only five blocks from campus. Ask for MSOE seminar room blocks and receive a special rate (subject to availability). To get this rate, make reservations by calling (800) 233-1234.

For more about Milwaukee, hotels and travel information visit www.msoe.edu/milwaukee.

Principal Instructor

Larry Fennigkoh, Ph.D., P.E., CCE
Professor, Biomedical Engineering
MSOE Electrical Engineering and
Computer Science Department

Dr. Fennigkoh specializes in teaching courses in human anatomy and physiology, medical instrumentation, biomedical engineering design, biostatistics and biomechanics. He brings 25 years of hospital-based clinical engineering experience associated with the use, testing, maintenance and management of medical equipment into his classroom experience. Fennigkoh also consults on forensic engineering cases involving medical devices and patient injuries.



For Additional Information

General information:

Applied Technology Center™
Professional Education
Phone: (414) 277-2492
Fax: (414) 277-7470
Email: learn@msoe.edu
www.msoe.edu/atc

Technical information:

Dr. Larry Fennigkoh
Phone: (414) 277-7289
Email: fennigko@msoe.edu

Topical Outline

Time	Monday	Tuesday	Wednesday	Thursday	Friday
8:30-9 a.m.	Breakfast				
9-10:30 a.m.	Introductions and course overview; introduction to systems physiology	Cardiovascular system physiology and anatomy	Electrical distribution systems; isolated power; 60 Hz leakage currents Electrical threshold of perception lab	Ventilators, arterial blood gases, pulse oximetry	Operating room equipment: electrosurgery; heart-lung machines Electrosurgery and laparoscopic hazards lab
10:30-10:45 a.m.	Break				
10:45-noon	Passive and active component behavior in electronic circuits; transducers	Cardiac electrophysiology, electrocardiography, and arrhythmias	Cardiac assist devices: intra-aortic balloon pump	Skeletal anatomy; movement planes; radiation physics and safety	Human factors and forensic engineering in the control of medical error
Noon-1 p.m.	Reception Lunch				
1-2:30 p.m.	Nervous system and origin of bioelectric signals; biopotential electrodes and electromyography	Hemodynamics: Invasive and non-invasive measurement of blood pressure; pulmonary artery catheters and cardiac output BP measurements lab	Applicable codes and standards: AAMI/ANSI; NFPA; JC	Radiography and fluoroscopy equipment	
2:30-2:45 p.m.	Break				
2:45-4 p.m.	Medical device hazards and the investigation of device-related patient injuries	Cardiac pacemakers and defibrillators	Respiratory system physiology and anatomy	Computed tomography; magnetic resonance imaging	
4:15-5:30 p.m.	Dinner on your own				



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