

BIOMEDICAL EQUIPMENT

*Effective Term – Summer 1997 [1997*02]*

BMT 111	Intro to Biomed Field	1	0	1
Prerequisites:	None			
Corequisites:	None			

This course introduces the fundamental concepts of the health care delivery system. Topics include hospital organization and structure, BMET duties and responsibilities, and the professional and social interrelationships between services. Upon completion, students should be able to demonstrate an understanding of hospital organization as related to BMET duties.

*Effective Term – Summer 1997 [1997*02]*

BMT 112	Hospital Safety Standards	2	2	3
Prerequisites:	None			
Corequisites:	None			

This course covers national, state, and local standards pertaining to hospital safety. Topics include electrical safety, gas safety, SMDA reporting, and JCAHO and FPA compliance. Upon completion, students should be able to conduct PM and safety inspections in compliance with safety regulations.

*Effective Term – Fall 2001 [2001*03] – CRC 4/17/01*

BMT 113	Medical Electronics	3	4	5
Prerequisites:	ELC 112 or ELC 131			
Corequisites:	None			

This course includes circuit approximations for semiconductor devices. Topics include first, second, and third approximations; biasing considerations; instrumentation amplifiers; and non-linear applications. Upon completion, students should be able to analyze and approximate the operation of semiconductor devices used in medical equipment.

*Effective Term – Summer 1997 [1997*02]*

BMT 113	Medical Electronics	3	6	5
Prerequisites:	ELC 112 or ELC 131			
Corequisites:	None			

This course includes circuit approximations for semiconductor devices. Topics include first, second, and third approximations; biasing considerations; instrumentation amplifiers; and non-linear applications. Upon completion, students should be able to analyze and approximate the operation of semiconductor devices used in medical equipment.

*Effective Term – Summer 1997 [1997*02]*

BMT 120	Biomedical Anatomy & Phy	2	2	3
Prerequisites:	None			
Corequisites:	None			

This course provides a basic study of human anatomy and physiology with emphasis on biomonitoring of body systems. Topics include homeostasis; cells and tissues; and the structure, function, and monitoring of body systems. Upon completion, students should be able to demonstrate a basic understanding of the structure, function, and biomedical monitoring of human body systems.

*Effective Term – Summer 1997 [1997*02]*

BMT 211	Biomedical Measurements	2	2	3
Prerequisites:	None			
Corequisites:	None			

This course introduces the human-instrument system and problems encountered in attempting to obtain measurements from a living body. Topics include electrodes, transducers, instrumentation, amplifiers, electrocardiographs, monitors, recorders, defibrillators, ESU units, and related equipment. Upon completion, students should be able to analyze, troubleshoot, repair, and calibrate diagnostic and therapeutic equipment.

*Effective Term – Spring 2008 [2008*01] – CRC 03/21/07*

BMT 212	BMET Instrumentation I	3	6	6
Prerequisites:	None			
Corequisites:	None			

This course covers theory of operation, circuit analysis, troubleshooting techniques, and medical applications for a variety of instruments and devices. Topics include electrodes, transducers, instrumentation amplifiers, electrocardiographs, monitors, recorders, defibrillators, ESU units, and related equipment used in clinical laboratories, intensive care units, and research facilities. Upon completion, students should be able to calibrate, troubleshoot, repair, and certify that instrumentation meets manufacturer’s original specifications.

*Effective Term – Fall 2001 [2001*03] – CRC 4/17/01*

BMT 212	BMET Instrumentation I	3	6	6
Prerequisites:	None			
Corequisites:	None			

This course covers theory of operation, circuit analysis, troubleshooting techniques, and medical applications for a variety of instruments and devices. Topics include instruments found in clinical laboratories, intensive care units, and research facilities. Upon completion, students should be able to repair, calibrate, and certify that instrumentation meets manufacturers’ original specifications.

*Effective Term – Summer 1997 [1997*02]*

BMT 212	BMET Instrumentation I	3	6	5
Prerequisites:	None			
Corequisites:	None			

This course covers theory of operation, circuit analysis, troubleshooting techniques, and medical applications for a variety of instruments and devices. Topics include instruments found in clinical laboratories, intensive care units, and research facilities. Upon completion, students should be able to repair, calibrate, and certify that instrumentation meets manufacturers’ original specifications.

*Effective Term – Summer 1997 [1997*02]*

BMT 213	BMET Instrumentation II	2	3	3
Prerequisites:	BMT 212			
Corequisites:	None			

This course provides continued study of theory of operation, circuit analysis, troubleshooting techniques, and medical applications for a variety of instruments and devices. Topics include instruments found in clinical laboratories, intensive care units, and research facilities. Upon completion, students should be able to repair, calibrate, and certify that instrumentation meets manufacturers’ original specifications.

*Effective Term – Summer 1997 [1997*02]*

BMT 222	Imaging Techniques	3	0	3
Prerequisites:	None			
Corequisites:	None			

This course covers imaging techniques associated with X-ray, CT scan, magnetic imaging, and ultrasound. Topics include radiation interaction with matter, X-ray emissions, beam restricting devices, and data display techniques. Upon completion, students should be able to understand the operation of the various components that make up typical digital imaging devices.

*Effective Term – Summer 1997 [1997*02]*

BMT 222A	Imaging Techniques Lab	0	6	2
Prerequisites:	None			
Corequisites:	BMT 222			

This course introduces practical examples of servicing and adjusting imaging equipment. Topics include radiation interaction with matter, X-ray emissions, beam restricting devices, and data display techniques. Upon completion, students should be able to analyze, troubleshoot, repair, and calibrate typical imaging equipment and devices.

*Effective Term – Fall 2001 [2001*03] – CRC 4/17/01*

BMT 223	Imaging Tech/Laser Fund	3	2	4
Prerequisites:	None			
Corequisites:	None			

This course covers techniques associated with X-Ray, CT Scan, Magnetic Resonance Imaging and ultrasound, along with fundamental concepts and applications of medical lasers. Topics include radiation interaction with matter, X-Ray emissions, beam restricting devices, laser energy generation, and laser usage in surgery and other related medical procedures. Upon completion, students should be able to understand the operation of imaging devices, evaluate, calibrate, align, and provide safety instruction in usage of medical lasers.

*Effective Term – Summer 1997 [1997*02]*

BMT 224	Biomed Laser/Fiber Optics	3	3	4
Prerequisites:	None			
Corequisites:	None			

This course covers fundamental concepts of medical lasers and medical applications of fiber optics. Topics include laser energy generation and usage in surgery, including ophthalmic, plaque removal, cosmetic, and other related medical procedures. Upon completion, students should be able to evaluate, calibrate, align, and provide safety instruction in the use of medical lasers and fiber optics.

*Effective Term – Fall 2001 [2001*03] – CRC 4/17/01*

BMT 225	Biomed Troubleshooting	1	4	3
Prerequisites:	None			
Corequisites:	None			

This course is designed to provide students with basic problem solving skills, and to track down and identify problems frequently encountered with medical instrumentation. Emphasis is placed on developing logical troubleshooting techniques using technical manuals, flowcharts, and schematics, to diagnose equipment faults. Upon completion, students should be able to logically diagnose and isolate faults, and perform repairs to meet manufacturer specifications.

See the SEL and SEM prefixes for generic Selected Topics and Seminar course descriptions.