# DIAGNOSTIC MEDICAL SONOGRAPHY

101.0 Semester Credit Hours

Approximate Duration in Weeks: 98 (for Day classes) and 113 (for Evening classes)

**Program Description**

Diagnostic Medical Sonographers, work towards conducting sonographic exam to create images in order to help physicians assess and diagnose medical conditions. Sonographers schedule and coordinate tests, records test results, and prepares and maintains operational logs.

In this program, students learn to perform diagnostic sonographic examinations utilizing ultrasonic equipment to locate, evaluate and record critical functional, pathological, and anatomical data. The program comprises of modules like Medical Terminology, Anatomy & Physiology, Ultrasound Physics, Scanning modules like abdomen, vascular and Ob/gyn. The coursework also includes 800 hours of externship which will also give students an opportunity to practice what they learned in the class. Students can also learn plenty of job related situations and how to handle these situations while working under the supervision of a trained professional in the field. Each module in the program will have a particular set of books and materials to serve as the fundamental reference guide of the subject. A step-by-step procedure is employed to walk the students through each chapter or topic.

**Program Objective**

The objective of the Diagnostic Medical Sonography Program is not only to prepare students to become skilled sonographers but also to equip them with the essential knowledge of the vital principles and instrumentation of Diagnostic Ultrasound.

**Professional Credentials**

After completion of the program student may appear for certification examinations offered by:
Cardiovascular Credentialing International (CCI) or
American Registry for Diagnostic Medical Sonography (ARDMS) or
American Registry of Radiologic Technologists (ARRT)

Students may appear for Registered Vascular Specialist (RVS) exam through Cardiovascular Credentialing International (CCI). For more information, please visit http://cci-online.org/content/examinations-offered.

Students may also appear for Registered Vascular Technologist (RVT) exam and Registered Diagnostic Medical Sonography (RDMS) exam through American Registry for Diagnostic Medical Sonography (ARDMS). Students without a bachelor's degree and who wish to apply for the ARDMS specialty exam will need to first gain additional clinical experience to become eligible to take the ARDMS specialty exam. The additional clinical experience could be gained by working as an ultrasound/vascular sonographer for a minimum of 12 months or 1680 hours. ARDMS does not accept volunteer, instructorship, unpaid, barter or veterinarian experience. Clinical experience earned to document the education requirement cannot also be used to support the clinical requirement. To learn more about the pre-requisites, please visit: http://www.ardms.org/ARDMS%20Documents/Prerequisites/ARDMS-461%20General%20Prerequisites%202018.pdf.
Students with Associates degree may also appear for the Sonography exam through the American Registry of Radiologic Technologists (ARRT). For more information, please visit

https://www.arrt.org/earn-arrt-credentials/types-of-credentials/primary-pathway/sonography.

**Employment**

Many Diagnostic Medical Sonographers are employed in hospitals, ambulatory centers, and radiology centers. The education focus of the student allows them to function well in their field. The Medical Sonographers not only scan parts of the body but are also responsible for maintaining equipment and orders supplies when needed. They rely on limited experience and judgment to plan and accomplish goals. They should be able to perform a variety of tasks, and typically report to a chief technologist or manager.

## Program Layout

| Term | Module | Course Title | Sem Credit |
|---|---|---|---|
| **Term I** | | | |
| | **Mod 1** | BIO111 Anatomy and Physiology | 13.0 |
| | **Mod 2** | PTC 110 Patient Care | 2.0 |
| **Term II** | | | |
| | **Mod 1** | SPI 222 Ultrasound Physics & Doppler | 20.5 |
| **Term III** | | | |
| | **Mod 1** | DMS 233 Abdomen and Small Parts | 16.0 |
| **Term IV** | | | |
| | **Mod 1** | DMS 243 Vascular Scanning | 16.0 |
| **Term V** | | | |
| | **Mod 1** | DMS 253 Ob/GYN | 15.0 |
| **Term VI** | | | |
| | **Mod 1** | DMS 264 Pre – Clinical | 1.0 |
| | **Mod 2** | DMS 265 DMS Externship | 17.5 |
| | | | **101.0** |

**Total Semester Credits - 101.0**

## Course Description

**BIO111 Anatomy and Physiology**

The module will give introduction to anatomy, the science of body structure, and the physiology, the study of body function. The anatomy and physiology of the body are closely related and this topic is the basic introduction to all those relationships.

The introduction covers following topics:

Introduction to Human Body, The Skeletal System, Lymphatic System, The Muscular System, The Endocrine System, The Circulatory System, The Respiratory System, The Digestive System, Cell & its Structure & functions, The Urinary System and The Reproductive System.

This module will also cover a comprehensive study of the more common medical roots, prefixes and suffixes. The topic will relate medical language used in medical field.

**PTC 110 Patient Care**

The topics covered under this module are:

Patient Care Techniques, Safety & Communication: bio-effects of ultrasound, monitoring of patient, common emergency handling, vital signs, assisting patient transfer and movement, and communication modes; Infection Control: terminology and basics of asepsis, cycle of infection, standard Precautions – hand washing, wearing gloves, gowns, masks, precautions for transmission of infection and disposal of contaminated material used; Legal and Ethical Principles: patient identification, clinical indication comparison, terminology of legal issues, patent's rights- includes informed consent, confidentiality (HIPAA), Patient's bill of rights and ethics of ultrasound technologist.

**SPI 222 Ultrasound Physics & Doppler (core module)**

The student will learn about the parameters of sound wave, pulsed ultrasound, interaction of sound with different media, range equation, axial resolution, types of transducers, characteristics of sound beams, display modes, two-dimensional imaging, real- time imaging, displays and image storage, dynamic range, and harmonics. Students will also cover various sections of instrumentation and by the end of the class will have a complete understanding of Doppler.

*Required pre-requisite for the module*: BIO 111.

**DMS 233 Abdomen and Small Parts (core module)**

This module covers the scanning techniques of abdominal organs like liver, biliary tree, pancreas, spleen, gall bladder, kidney, urinary bladder, appendix, along with the pathology of abdomen organs and small parts like thyroid glands, parathyroid glands, prostate, scrotum and breasts.

*Required pre-requisite for the module*: SPI 222.

**DMS 243 Vascular Scanning (core module)**

This module covers the basic introduction to the vascular ultrasound. The module covers the basic concept about vasculature, the vascular anatomy and pathology related to vessels.

*Required pre-requisite for the module*: SPI 222.

**DMS 253 OB/GYN (core module)**

This module includes scanning techniques of Pelvic organs like ovaries, uterine tubes and cervix. They also study about normal and completed pregnancy, scanning techniques of fetus, pathology & congenital anomalies of the fetus.

*Required pre-requisite for the module*: SPI 222.

**DMS 264 Pre – Clinical (core module)**
In this module the student will be required to practice the clinical protocols learned in all the core scanning modules. The student will practice and review the protocols under the supervision of the clinical instructor covering the scanning protocols of Abdomen and Small Parts, Ob/Gyn and Vascular modules.
*Required pre-requisite for the module*: DMS 233, DMS 253 and DMS 243.

**DMS 265 DMS Externship (core module)**
This course will provide the student with hands-on experience in a physician's office, hospital, or imaging centers under the supervision and control of the AIHT, overseen by a designated site supervisor. Externships allow students to develop skills and contacts within the profession while they explore various career opportunities.
*Required pre-requisite for the module*: DMS 264