

SONO111 Abdominal Sonography

Course Description

Provides a study of diagnostic foundations of clinical medicine pertinent to abdominal and non-cardiac chest sonography. Includes obtaining the clinical history, interpretation of clinical laboratory test, the pathophysiologic effects of disease, related clinical signs and symptoms, sectional anatomy, and normal/abnormal sonographic patterns. Includes a laboratory component for the practice and application of normal sonographic patterns, basic scanning techniques and protocol.

Course Competencies

Upon completion of this course, the student can:

1. Demonstrate the ability to perform sonographic examinations of the abdomen according to protocol guidelines established by national professional organizations utilizing real-time equipment and Doppler display modes.
2. Recognize and identify the sonographic appearance of normal anatomic structures, anatomic variants, and normal Doppler patterns included in the abdominal and non-cardiac structures.
3. Recognize, identify, and appropriately document the abnormal sonographic and Doppler patterns of disease processes, pathology, and pathophysiology of the abdominal and non-cardiac structures.
4. Make choices based upon awareness of ethics and differing perspectives/ideas.

SONO116 OB/GYN Sonography

Course Description

Covers the study of the clinical applications within the sonographic specialties of obstetrics and gynecology. Includes related clinical symptoms and laboratory test, pathophysiologic effects of disease and anomalies, and normal/abnormal sonographic patterns. Includes basic scanning techniques and protocol. Designed for the student to utilize the laboratory facilities to demonstrate clinical applications of theoretical principles and concepts.

Course Competencies

1. Demonstrate the ability to perform sonographic examinations of the non-gravid and gravid female pelvis and the embryo/fetus according to protocol guidelines established by national professional organizations utilizing real-time equipment and Doppler display modes.
2. Recognize and identify the sonographic appearance of normal anatomic structures, anatomic variants, and normal Doppler patterns included in the non-gravid and gravid female pelvis and the embryo/fetus.
3. Recognize, identify, and appropriately document the abnormal sonographic and Doppler patterns of disease processes, pathology, and pathophysiology included in the non-gravid and gravid female pelvis and embryo/fetus.
4. Make choices based upon awareness of ethics and differing perspectives/ideas.

SONO121 Sonography Physics and Instrumentation

Course Description

Consists of lectures and related laboratory exercises covering the areas of ultrasonic propagation principles, transducer parameters, interactive properties of ultrasound with human tissue, possible biologic effects, basic equipment types, instrumentation and quality control procedures, hemodynamics, and basic Doppler.

Course Competencies

1. Describe sound waves, propagation of ultrasound through tissue, reflection, refraction, and scattering.
2. Explain transducer technology, and discuss the advantages and limitations of the various types.
3. Discuss the basic features of medical sonographic equipment, including operator controls and image processing.
4. Describe the role of advanced scanning features, including harmonics, coded excitation, and compounding.
5. Explain how pulsed Doppler, color flow imaging, and amplitude imaging is achieved.
6. Recognize and describe image artifacts and techniques to minimize or eliminate them.
7. Describe the importance of performance, safety, and output measurements and standards.
8. Use mathematics to organize, analyze, and synthesize data to solve a problem.

SONO125 Clinical Education I

Course Description

Observation of all clinical duties performed in the ultrasound department. Basic instruction and scanning experience in abdomen and OB/GYN sonography. Basic competencies will be performed.

Course Competencies

1. Identify the anatomy visualized in all body planes.
2. Identify the anatomic plane visualized and the patient position.
3. Describe the patient preparation, if any, for the type of examination that is being performed.
4. Demonstrate an understanding of the various types of ultrasound equipment and how to choose the proper type for a particular examination.
5. Demonstrate a working knowledge of gain control manipulation and transducer selection for each particular examination.
6. Explain various technical factors and scanning techniques for varying body habitus and uncooperative patients.

SONO200 Online Physics Review

Course Description

Includes a review of basic ultrasound physics, transducers, bioeffects, artifacts, quality assurance and principles of Doppler techniques.

Course Competencies

Successfully pass a mock registry covering ultrasound physics including basic physical principles, transducers, propagation through tissues, pulse echo instruments, modes of operation, Doppler principles, hemodynamics, color flow, bioeffects, artifacts and quality assurance.

SONO201 Online Abdomen Review

Course Description

Provides a review of abdominal sonography to prepare the student for the related registry. Includes obtaining a clinical history, interpretation of clinical laboratory tests, pathologic basis for disease, related clinical signs and symptoms, sectional anatomy, and normal/abnormal sonographic patterns.

Course Competencies

Successfully pass a mock registry covering the topic of abdominal sonography.

SONO202 Online OB/GYN Review

Course Description

Provides a review of related clinical signs and symptoms, laboratory tests, and normal/abnormal sonographic patterns in preparation for the related Ob/Gyn registry.

Course Competencies

Successfully pass a mock registry covering topics that include obstetrics, gynecology and neurosonography.

SONO203 Online High Resolution Sonography

Course Description

Provides a study of diagnostic foundations of clinical medicine pertinent to superficial structures and neurosonography. Includes obtaining the clinical history, interpretation of clinical laboratory test, the pathologic basis of disease, pathophysiology, related clinical signs and symptoms, sectional anatomy, normal/abnormal sonographic patterns, and fundamental application of musculoskeletal sonography and pediatric hips.

Course Competencies

1. Recognize and identify the sonographic appearance of normal anatomic structures, anatomic variants, and normal Doppler patterns included in superficial structures, neurosonography, musculoskeletal structures and the pediatric hip.
2. Recognize and identify the abnormal sonographic appearance of anatomic structures and Doppler patterns of disease processes, pathology, and pathophysiology included in superficial structures, neurosonography, musculoskeletal structures and the pediatric hip.
3. Describe the application of contrast agents and basic pharmacology utilized in Sonography.
4. Make choices based upon awareness of ethics and differing perspectives/ideas.

SONO230 Clinical Education II

Course Description

Includes experience in all clinical applications which includes abdomen, superficial structures, non-cardiac chest, embryo/fetus, and the gravid and non-gravid pelvic structures. Rate of progress is dependent upon the student's ability to comprehend and perform assignments. Basic and advanced competencies will be performed.

Course Competencies

1. Demonstrate the ability to perform advanced level examinations of the abdomen, superficial structures, non-cardiac chest, embryo/fetus, and the gravid and non-gravid pelvis.
2. Demonstrate an understanding of the various types of ultrasound equipment and how to choose the proper type for a particular examination.
3. Recognize and identify the normal sonographic appearance and Doppler patterns of the abdomen, superficial structures, non-cardiac chest, embryo/fetus, and the gravid and non-gravid pelvic structures.
4. Recognize, identify, and appropriately document the abnormal sonographic appearance and Doppler patterns of disease in the abdomen, superficial, non-cardiac chest, embryo/fetus, gravid and non-gravid pelvic structures.
5. Interact cooperatively with others using both verbal and non-verbal means.

SONO240 Clinical Education III

Course Description:

Continues the clinical experience by student assuming a more active role in assisting the practicing sonographer and performing sonographic duties under direct supervision. The rate of progress is dependent upon the student's ability to comprehend and perform assignments.

Course Description

1. Demonstrate the ability to perform advanced level examinations of the abdomen, superficial structures, non-cardiac chest, embryo/fetus, and the gravid and non-gravid pelvis.
2. Demonstrate an understanding of the various types of ultrasound equipment and how to choose the proper type for a particular examination.
3. Recognize and identify the normal sonographic appearance and Doppler patterns of the abdomen, superficial structures, non-cardiac chest, embryo/fetus, and the gravid and non-gravid pelvic structures.
4. Recognize, identify, and appropriately document the abnormal sonographic appearance and Doppler patterns of disease in the abdomen, superficial, non-cardiac chest, embryo/fetus, gravid and non-gravid pelvic structures.
5. Interact cooperatively with others using both verbal and non-verbal means.