NUCLEAR MEDICINE TECHNOLOGY (NMTC)

NMTC 4331 Management and Methods of Patient Care I. (Formerly 331) Skills in problem-solving, critical-thinking, and decision-making are developed as well as oral and written communication skills. Career skills are enhanced through the interview process, resume writing, and administrative duties including; budgeting, medical and legal considerations and political issues affecting health care. Special emphasis is placed on participation in a quality control program and scheduling guidelines. Focus on basic measures necessary to provide quality patient care. Basic principles of record keeping and maintaining confidentiality of information are explained. Prerequisite: Must be accepted into the Nuclear Medicine Technology Program. 3 semester credit hour/s. Department Consent Required.
Campus: LISLE

NMTC 4332 Radiation Safety & Protection. (Formerly 332) Supervised practice and procedures for the receipt, handling, transporting, storage, usage, record keeping, disposal and decontamination of radioactive materials. Emphasis on licensing and regulations set forth by local, state, and federal agencies. Academic and clinical instruction to provide the student with radiation safety techniques to minimize exposure to themselves, the patient, public, fellow workers and themselves. Regulations regarding therapeutic dosages and follow-up procedures. 3 semester credit hour/s.
Campus: LISLE

NMTC 4333 Radiation Physics and Instrumentation. (Formerly 333) Theory and physical principles associated with atomic structure, nucleus and quantum physics related to radioactive decay. Properties of the elements and the production of characteristic x and gamma rays, anger electrons and Bremstrahlung. Instruction on the modes of decay, radiation dosimetry, and interaction of ionizing with matter. Basic physics, instrumentation, and radiochemistry of Positron Emission Tomography (PET). Prerequisite: Must be accepted into the Nuclear Medicine Technology Program. 3 semester credit hour/s. Department Consent Required.
Campus: LISLE

NMTC 4334 Diagnostic Nuclear Imaging Clinical Practicum I. (Formerly 334) Supervised clinical education that gives the student the opportunity to perform a variety of patient procedures on both SPECT and PET imaging systems for all diagnostic, therapeutic, non-imaging in-vivo and in-vitro procedures. Clinical competencies developed in patient care, positioning techiques, analyzing images, and the selection of imaging parameters and collimators. Knowledge of integrated computer systems designed for use with clinical gamma cameras, Single Photon Emission Computed Tomography (SPECT) and Positron Emission Tomography (PET) images. The clinical practicum is designed to promote independent critical thinking, balanced responsibility, organization and accountability in the student. Students will demonstrate competence in all procedures presented. Prerequisite: Must be accepted into the Nuclear Medicine Technology Program. 4 semester credit hour/s. Department Consent Required.
Designation: Engaged Learning
Campus: LISLE

NMTC 4335 Clinical Nuclear Medicine Procedures I. (Formerly 335) Emphasis on theory and techniques of clinical procedures used in nuclear medicine imaging. Areas emphasized include patient care, developing acquisition parameters, imaging techniques, radionuclide identification, energies, half-lives, and principles of radionuclides in imaging and non-imaging procedures. Students will continue to develop an increased degree of competence in their performance of the skills related to critical thinking and problem solving. Prerequisite: Must be accepted into the Nuclear Medicine Technology Program. 3 semester credit hour/s. Department Consent Required.
Campus: LISLE

NMTC 4336 Radionuclide Chemistry and Radiopharmacy. (Formerly 336) The chemical, physical and biological properties of radiopharmaceuticals used in diagnosis and therapy. Emphasis is given to the preparation, calculation, identification, administration, and disposal of radiopharmaceuticals. Performance of all radionuclide quality control and quality assurance procedures. Principles of decay and half-life, tissue localization, chemical impurities, generator systems, dose preparation and techniques of good laboratory practices. 3 semester credit hour/s.
Campus: LISLE

NMTC 4337 Radiation Biology. (Formerly 337) Knowledge of cell structure and function as a basis for understanding cellular and organ responses to the effects of ionizing radiation, radionuclides and radiation oncology. Understanding units of exposure, organ dose calculation and body distribution. Prerequisite: Must be accepted into the Nuclear Medicine Technology Program. 1 semester credit hour/s. Department Consent Required.
Campus: LISLE

NMTC 4339 Clinical Correlation-Pathology. (Formerly 339) Focus on the study of the structure and function of human cells, tissues, organs and systems. Clinical interpretation of organ systems with emphasis on immunology, and anatomy and physiology, which will provide a basis for understanding abnormal or pathological conditions as applied to nuclear medicine. Causes, symptoms, and treatments of disease are discussed as well as its effect on the images. In addition, the student is scheduled to observe the interpretation of images with the physician staff. Prerequisite: Must be accepted into the Nuclear Medicine Technology Program. 2 semester credit hour/s. Department Consent Required.
Campus: LISLE (Typically Offered: Annually)

NMTC 4340 Radiation Detection & Instrumentation. (Formerly 340) Evaluation, maintenance and function of instrumentation used in imaging and in the laboratory. Principles and theory of PET and scintillation camera operation and performance. Radiation measurement, event counting activity, pulse height spectra, detection efficiency, resolving time and statistics. Flood field and bar phantom use for assessing camera uniformity, relative sensitivity, spatial linearity and resolution testing. Quality assurance procedures for the PET scanner include radial, tangential and axial resolution, sensitivity, linearity, uniformity, attenuation accuracy, scatter determination and dead time corrections. Prerequisite: Must be accepted into the Nuclear Medicine Technology Program. 3 semester credit hour/s. Department Consent Required.
Campus: LISLE

NMTC 4342 Management and Methods of Patient Care II. (Formerly 342) Prerequisite: Must be accepted into the Nuclear Medicine Technology Program. 1 semester credit hour/s. Department Consent Required.
Campus: LISLE (Typically Offered: Annually)

NMTC 4344 Diagnostic Nuclear Imaging Clinical Practicum II. (Formerly 344) Prerequisite: Must be accepted into the Nuclear Medicine Technology Program. 4 semester credit hour/s. Department Consent Required.
Designation: Engaged Learning
Campus: LISLE

NMTC 4345 Clinical Nuclear Medicine Procedures II. (Formerly 345) Prerequisite: Must be accepted into the Nuclear Medicine Technology Program. 3 semester credit hour/s. Department Consent Required.
Campus: LISLE (Typically Offered: Annually)

NMTC 4348 Computed Tomography and Cross-Sectional Anatomy. (Formerly 348) Prerequisite: Must be accepted into the Nuclear Medicine Technology Program. 2 semester credit hour/s. Department Consent Required.
Campus: LISLE (Typically Offered: Annually)

NMTC 4349 Medical Terminology. (Formerly 349) Prerequisite: Must be accepted into the Nuclear Medicine Technology Program. 1 semester credit hour/s. Department Consent Required.
Campus: LISLE (Typically Offered: Annually)