

**Central Ohio Technical College  
Course Description Listing  
2001-2002 Academic Year**

**HEALTH TECHNOLOGIES: 4000**

**4003 Microbiology for the Health Professions**

5 credit hours, 6 contact hours (4 hours lecture and 2 hours lab). Prerequisite: C grade (2.00) or better in high school chemistry (or 1223) **and in a general College biology course or in 4016**. Open to any student not enrolled in Nursing or Allied Health programs on a space available basis.

A survey of the microbial world including types of microbes, microbial metabolism, microbial genetics, microbial growth, host/microbe interactions, immunology, and infectious diseases of the body systems. The laboratory portion of this course enhances the theories and concepts presented in the didactic portion of the course.

**4004 Elementary Microbiology**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: C grade (2.00) or better in high school chemistry (or 1223) or completion of 4081 with a C grade (2.00) or better. Not open to students with credit for 4003.

Introduction to microbiology, surveying the basic types of microscopic organisms. Classification, structure, culturing, transmission, microbial control, and selected diseases are studied.

**4005 Introduction to Human Biology**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: None. Not open to students with credit for 4016 or 4081. This course will count neither for elective credit nor toward meeting minimum credit hours for graduation.

A basic introduction to biology through study of the human body. The course is designed for students planning entry into a technology requiring an understanding of human structure and function or familiarity with anatomical and physiological terminology.

**4006 Basic Science for Nutrition**

3 credit hours, contact hours (3 hours lecture and 0 hours lab). Prerequisite: None. This course will count neither for elective credit nor toward meeting minimum credit hours for graduation.

Basic Science for Nutrition is a pre-technical review of the science essential to understanding nutrition. Students who must take college level nutrition courses and who have had no chemistry or general biology will benefit from this course.

#### **4007 Ethics: Introduction and Application in Modern Medicine**

5 credit hours, 6 contact hours (4 hours lecture and 2 hours lab). Prerequisite: Enrolled in Nursing Technology or Allied Health Technologies courses; Honors status [3.5 GPA or membership in Phi Theta Kappa]. This course is offered every other year.

This course will cover both general ethical theory, and discussion of difficult issues in modern medicine, questions at the frontiers of modern society. Special emphasis will be placed on ethical matters involved in reproduction, informed consent, genetic engineering, experimentation with children, experimentation with fetuses and death with dignity. The reading material will consist of essays by philosophers on ethical theory and practice, essays of physicians on moral problems, and case studies. After the section of the course devoted to theory, the class will be divided into groups, with each group responsible for presenting one of the issues.

#### **4015 Basic Health Care Skills**

5 credit hours, 8 contact hours (3 hours lecture, 3 hours lab and 2 hours clinical). Prerequisite: None.

This course prepares a basic health care worker with skills required by the Training and Competency Evaluation Program (TCEP) prior to gaining eligibility to become a State Tested Nurse Aide (STNA) and/or to employment as a home health aide. Content includes communication, infection control, safety and emergency procedures, promoting residents=clients= independence, respecting residents=clients= rights, basic nursing skills, personal care skills, providing care in a home setting, mental health and social service needs and basic restorative services. College lab permits development of various basic nursing skills. These skills are then implemented during a 20 hour clinical experience in a local health care facility.

#### **4016 Human Anatomy and Physiology I**

6 credit hours, 7 contact hours (5 hours lecture and 2 hours lab). Prerequisite: C grade (2.00) or better in high school biology (or 4005) and high school chemistry (or 1223). Students may not be concurrently enrolled in 4005 and 4016. Open to any student not enrolled in Nursing or Allied Health Technologies programs on a space available basis.

Introduction to the study of the anatomy and physiology of the human, including standard terminology, chemistry review, cells and tissues, with the structure and function of the integumentary system, skeletal system, muscular system, nervous system, excretory system, and reproductive system. Laboratory includes the study of human cadavers.

## **4026 Human Anatomy and Physiology II**

6 credit hours, 7 contact hours (5 hours lecture and 2 hours lab). Prerequisite: C grade (2.00) or better in 4016 or equivalent.

Continued study of the anatomy and physiology of the human, including the structure and function of the receptors, gastrointestinal system, cardiovascular system, lymphatic system, respiratory system, endocrine system, genetics and embryology. Laboratory includes the study of human cadavers.

## **4027 Medical Terminology I (Video)**

1 credit hour, 1 contact hour (1 hour lecture and 0 hours lab). Prerequisite: None. Credit for this course is not accepted for graduation for Nursing programs [Nursing students must enroll in 4037 and 4038]. The 4027/4028 Medical Terminology I/II video sequence and 4037/4038 Medical Terminology I/II non-video sequence CANNOT be intermixed.

This course considers the structure of medical words including their spelling and definition. The student will learn common prefixes, suffixes, and root words and how to combine them to form medical terms. Commonly used medical abbreviations are also included. This course is taught with video.

## **4028 Medical Terminology II (Video)**

1 credit hour, 1 contact hour (1 hour lecture and 0 hours lab). Prerequisite: Allied Health Technologies students: C grade [2.00] or better in 4027; Other Technologies students: 4027. Credit for this course is not accepted for Nursing programs [Nursing students must enroll in 4037 and 4038]. The 4027/4028 Medical Terminology I/II video sequence and 4037/4038 Medical Terminology I/II non-video sequence CANNOT be intermixed.

During this course the student will continue to develop a medical vocabulary. The student will become familiar with terms used to describe common diseases, medical specialties, and operative procedures. This course is taught with video.

## **4036 Nutrition**

3 credit hours, 4 contact hours (2 hours lecture and 2 hours lab). Prerequisite: None.

Students will learn about the fundamental principles and practices that are essential in nutritional care to maintain health, to prevent illness, and to provide support and therapy during illness. The focus will be on the composition and function of foods; the nutritional needs during the life cycle; and the ways in which variations in caloric content, consistency, and nutrient composition may be employed to meet individual diet requirements.

## **4037 Medical Terminology I (Non-Video)**

1 credit hour, 1 contact hour (1 hour lecture and 0 hours lab). Prerequisite: None. The 4027/4028 Medical Terminology I/II video sequence and the 4037/4038 Medical Terminology I/II non-video sequence CANNOT be intermixed.

This course considers the structure of medical words including their spelling and definition. The student will learn common prefixes, suffixes, and root words and how to combine them to form medical terms. Commonly used medical abbreviations are also included. This course is taught non-video.

### **4038 Medical Terminology II (Non-Video)**

1 credit hour, 1 contact hour (1 hour lecture and 0 hours lab). Prerequisite: Allied Health Technologies students: C grade [2.00] or better in 4037; Other Technologies students: 4037. The 4027/4028 Medical Terminology I/II video sequence and the 4037/4038 Medical Terminology I/II non-video sequence CANNOT be intermixed.

During this course the student will continue to develop a medical vocabulary. The student will become familiar with terms used to describe common diseases, medical specialties, and operative procedures. This course is taught non-video.

### **4044 Patient Care in Allied Health**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in Diagnostic Medical Sonography Technology; C grade [2.00] or better in the following: 4016 and 4026, and concurrent enrollment in 4511.

During this course, the Allied Health Student is introduced to the basic aspects of patient care in the health care setting. Students are acquainted with the different types of patient care situations they may encounter while working in a health care facility. Topics include evaluating and meeting the physical needs of patients, infection control practices, assisting with the administration of medication, medications and their administration, dealing with acute situations and special care unit patients.

### **4045 Human Development**

5 credit hours, 5 contact hours (5 hours lecture and 0 hours lab). Prerequisite: 1384 or 1386 or by permission of the Academic Director or instructor.

Students study human development as a dynamic, multi-dimensional process from conception through death. Emphasis is placed on the inter-relationship of the many biopsychosocial factors influencing human development, general principles of growth and development, major developmental tasks encompassing each stage of the life cycle, and health and development problems common to each stage. Course requirements include a project focusing on the application of human development theories, concepts, principles, and tasks.

### **4046 Current Issues in Allied Health**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Second Year status in Diagnostic Medical Sonography Technology or Radiographic Technology.

This course presents current issues relevant to imaging departments and personnel. During the course topics such as ethics, professionalism, death and dying, organ and tissue donation/transplantation, medical research, and new techniques and procedures will be reviewed.

### **4048 Pathophysiology I**

3 credit hours, 4 contact hours (2 hours lecture and 2 hours lab). Prerequisite: C grade (2.00) or better in 4016 or its equivalent.

Study of pathological imbalances including cellular adaptation and injury, fluid compartment exchanges with edema and dehydration, electrolyte functions, control and imbalances, acidosis and alkalosis, nervous system injuries and responses, sensory imbalances, skeletal system injury and repair, soft tissue injury and repair, and muscle injury and dysfunction.

### **4049 Pathophysiology II**

3 credit hours, 4 contact hours (2 hours lecture and 2 hours lab). Prerequisite: C grade (2.00) or better in 4026 (or equivalent) and 4048 (or equivalent).

Study of pathological imbalances including blood pressure, homeostasis, shock, cardiac malfunction, respiratory malfunction, hematopoiesis with anemias and leukemias, gastrointestinal imbalances, liver malfunction, renal failure, bladder injury and control, and endocrine hypersecretions and hyposecretions.

### **4052 First Aid**

2 credit hours, 4 contact hours (1 hour lecture and 3 hours lab). Prerequisite: None. This course is not open to students with credit for 4042, 5140 or 5205.

This course is designed to help the student make appropriate decisions regarding first aid care and to act on those decisions. Students will recognize when an emergency has occurred and the plan of action needed for the emergency until professional medical help arrives.

### **4054 Principles of Pathophysiology for Radiographers**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiographic Technology program and a C grade (2.00) or better in 4152.

This course discusses the principles of human pathophysiology, the signs, symptoms, diagnosis and treatment of numerous pathological processes. Topics will include the imaging implications and methods to best demonstrate various pathologies.

### **4056 Pathophysiology Seminar for Medical Imaging**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology or the Radiographic Technology programs and a C grade (2.00) or better in 4152 or 4516 or permission of the instructor.

This course is designed to correlate medical modalities utilized to diagnose various disease processes. The student will have an opportunity to observe and discuss sonographic, radiographic, computed tomography, magnetic resonance imaging, and nuclear medicine images.

### **4060 Environmental Science**

5 credit hours, 6 contact hours (4 hours lecture and 2 hours lab). Prerequisite: None.

An introduction to the principles of ecology and the environment with a special emphasis on environmental problems related to the impact of human activities on the ecosystem. Issues affecting business and industry are highlighted.

### **4070 General Biology**

5 credit hours, 6 contact hours (4 hours lecture and 2 hours lab). Prerequisite: High School Biology or equivalent or 1240. High School Chemistry or equivalent is strongly recommended but not required. Recommended strongly as preparation for the student who must take 4016 Human Anatomy and Physiology I and 4026 Human Anatomy and Physiology II.

General Biology introduces the major concepts and principles of biology, emphasizing cell structure and function, heredity, plant and animal organization, taxonomy, and ecology.

### **4081 Human Biology**

5 credit hours, 7 contact hours (3 hours lecture and 4 hours lab). Prerequisite: High school science, or 1240.

An introduction to biology through the study of the human body. Laboratory studies use human cadavers. The course is designed for students planning entry into a technology requiring a basic understanding of human structure and function or familiarity with anatomical and physiological terminology. This course **does not** course or substitute for credit for 4016 Human Anatomy and Physiology I or 4026 Human Anatomy and Physiology II, both of which are required for students in Diagnostic Medical Sonography Technology, Nursing Technology, Physical Therapist Assistant Technology, and Radiographic

Technology.

### **4101 RT Anatomy and Procedures I**

3 credit hours, 5 contact hours (2 hours lecture and 3 hours lab). Prerequisite: Must be accepted into the Radiographic Technology program.

The student will be introduced to the basic radiographic positioning principles and terminology. This course also covers radiographic imaging of the chest, abdomen, and upper and lower extremities. Emphasis is on the anatomy, routine positioning, and common pathologies demonstrated.

### **4102 RT Anatomy and Procedures II**

5 credit hours, 6 contact hours (4 hours lecture and 2 hours lab). Prerequisite: Must be enrolled in the Radiographic Technology program. C grade (2.00) or better in 4016 and 4101.

This course covers radiographic imaging of the bony thorax, vertebral column, digestive and urinary systems and cranium. Emphasis is on the anatomy, routine positioning, common pathologies, and contrast media utilized.

### **4110 Advanced Clinical Education in Radiology**

2 credit hours, 8.5 contact hours (0.5 hours lecture, 0 hours lab and 8 hours clinical). Prerequisite: Enrollment in the Radiographic Technology program, C grade (2.00) or better in 4148, successful achievement of Radiographic Technology program clinical competency requirements and permission of the faculty.

This course will provide the student with the opportunity to observe medical imaging and radiotherapeutic modalities in an alternative clinical setting. The student will integrate previous knowledge and formulate assessments relative to the overall health care plan for patients= medical conditions.

### **4126 Departmental Administration**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in Radiographic Technology or Diagnostic Medical Sonography Technology. (Concurrent enrollment in 4056 and 4183) or (C grade [2.00] or better in the following: 4544 or 4562 and concurrent enrollment in 4546 or 4563).

This course is designed to introduce the student to basic principles of hospital administration and organization and relates those principles to the management of the radiology department. Students will have the opportunity to review the concepts of hospital organization, financing, employment practices and quality control. Upon completion of this course, students gain an insight into the overall administration of hospitals and departments

within the hospital. This course provides basic management skills and knowledge for those students interested in pursuing a supervisory position in the radiology department.

### **4130 Clinical Radiology I**

1 credit hour, 5 contact hours (0 hours lecture and 5 hours lab). Prerequisite: Enrollment in the Radiographic Technology program and concurrent enrollment in 4101. S/U Graded Course.

This course provides an orientation to the clinical environment. Topics covered are designed to prepare the student for safe practice in the clinical setting. Topics include radiation safety, OSHA standards, policies and procedures, code of ethics, departmental organization, and the health care team. This course will be taught as a term course (contact hours will be doubled over a five week period). This course is graded Satisfactory/Unsatisfactory.

### **4139 Radiobiology and Radiation Protection**

3 credit hours, 4 contact hours (2 hours lecture and 2 hours lab). Prerequisite: Enrollment in Radiographic Technology. C grade (2.00) or better in 4184 or permission of the instructor.

This radiographic technology course presents the study of radiobiology, radiation protection and safety and methods of minimizing radiation exposure to occupational workers and patients. The radiobiology portion of the course includes the following topics: molecular and cellular radiobiology, early and late effects of radiation exposure and theories related to the effect of ionizing radiation on humans. During the radiation protection and safety segment students will be introduced to state and federal regulations and discuss various methods of minimizing radiation exposure.

### **4140 Clinical Radiology II**

1 credit hour, 8 contact hours (1 hour lecture and 0 hours lab, 7 hours clinical). Prerequisite: Enrollment in the Radiographic Technology program and a grade of Satisfactory in 4130. S/U Graded Course.

This is an introductory experience into the clinical setting in which students have the opportunity to observe concepts and techniques related to radiographic imaging and patient care. Students will function under the supervision of qualified radiographers or physicians. This course will meet for one hour weekly on campus with the program faculty. The course will be taught as a term course (contact hours will be doubled over a five week period). This course is graded Satisfactory/Unsatisfactory.

### **4146 Clinical Radiology III**

2 credit hours, 17 contact hours (1 hour lecture and 0 hours lab, 16 hours clinical). Course

is repeatable up to a maximum of 4 credit hours. Prerequisite: Enrollment in the Radiographic Technology program and a grade of Satisfactory in 4140.

During this clinical experience students will gain practical experience and begin to apply cognitive, psychomotor, and affective skills in the clinical setting. Students will function under the supervision of qualified radiographers or physicians. This course will meet for one hour weekly on campus with the program faculty.

### **4148 Clinical Radiology V**

2 credit hours, 17 contact hours (1 hour lecture and 0 hours lab, 16 hours clinical). Course is repeatable up to a maximum of 6 credit hours. Prerequisite: Enrollment in the Radiographic Technology program and C grade (2.00) or better in 4147.

This course provides advanced experience in the clinical setting. It is designed to allow students to apply previously learned theories and techniques for radiographic imaging. Students will have the opportunity to observe angiography and specialized procedures. Student radiographers will function under the supervision and guidance of the clinical radiographers and physicians in the health care setting. Hospital computer systems will be discussed. This course will meet for one hour weekly on campus with the program faculty.

### **4149 Clinical Radiology VI**

2 credit hours, 16 contact hours (0 hours lecture and 0 hours lab, 16 hours clinical). Prerequisite: Enrollment in the Radiographic Technology program and C grade (2.00) or better in 4148.

This final clinical experience emphasizes mastery of skills in all areas of radiographic technology. The course is designed to challenge students to function independently within the supervised environment of the clinical setting. Students will have the opportunity to observe several imaging modalities. This course will be taught as a term course (contact hours will be doubled over a five week period).

### **4152 Special Radiographic Procedures**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiographic Technology program and C grade (2.00) or better in 4147 and 4182.

This Radiographic Technology course is the study of advanced radiographic procedures, angiography and interventional radiology. Topics to be covered include equipment requirements, anatomy visualized, radiographers role, indications, contraindications, pre and post procedural care and pathologies demonstrated.

### **4154 Radiographic Seminar I**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Enrollment

in the Radiographic Technology program and C grade (2.00) or better in 4146, 4158, and 4184.

This course provides the student with the opportunity to discuss the principles of radiographic imaging. Application of previously learned concepts will be discussed relative to the clinical setting.

### **4155 Radiographic Seminar II**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiographic Technology program and C grade (2.00) or better in 4148 and 4183.

This course provides the correlation between previously learned radiographic concepts and clinical application. It is designed to aid in the transition from student to entry level radiographer. General topics of discussion include: radiation protection, equipment operation, image production and evaluation, radiographic positioning, and patient care procedures. Requirements for ethical and legal practice of radiography in Ohio are discussed. This course will be taught as a term course (contact hours will be doubled over a five week period).

### **4157 Radiation Physics I**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiographic Technology program and a grade of Satisfactory in 4140.

This course discusses the principles of physics as they relate to radiation. Topics to be covered include electromagnetic and particulate radiation, electrodynamics and electrostatics, magnetism and electromagnetism.

### **4158 Radiation Physics II**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiographic Technology program and C grade (2.00) or better in 4157.

This course is a continuation of 4157 Radiation Physics I. The student will apply knowledge to the construction and use of the radiographic equipment. Special emphasis will be placed on the effects on radiographic techniques and image formation.

### **4159 Clinical Radiology IV**

4 credit hours, 32 contact hours (1 hour lecture and 0 hours lab, 31 hours clinical). Prerequisite: Enrollment in the Radiographic Technology program and C grade (2.00) or better in 4146.

This course is designed to provide students with extensive clinical experience in all areas of the radiology department. Students will develop individual techniques and skills in

radiographic procedures under the supervision of qualified radiographers or physicians. This course will meet for one hour weekly on campus with the program faculty.

### **4164 Patient Care in Radiology I**

0.5 credit hours, 1 contact hour (0 hours lecture and 1 hour lab). Prerequisite: Enrollment in the Radiographic Technology program and a grade of Satisfactory in 4130.

During this introductory course to the Patient Care sequence, the student is introduced to universal precautions, patient transfers and body mechanics, fire safety, and guest relations. Students will also learn basic patient assessment procedures and policies and study the communication process as it applies to patients and the health care team. This course will be taught as a term course (contact hours will be doubled over a five week period).

### **4165 Patient Care in Radiology II**

1 credit hour, 2 contact hours (0 hours lecture and 2 hours lab). Prerequisite: Enrollment in the Radiographic Technology program, a C grade (2.00) or better in 4164 and a grade of Satisfactory in 4140.

During this second course in the Patient Care sequence, the student is introduced to surgical and medical asepsis, patient advocacy, contrast and oxygen administration, general pharmacological principles, and medico-legal aspects of radiography. Principles of conflict management and the impact of values and beliefs on patient communication will be discussed.

### **4166 Patient Care in Radiology III**

1 credit hour, 2 contact hours (0 hours lecture and 2 hours lab). Prerequisite: Enrollment in the Radiographic Technology program and C grade (2.00) or better in 4146 and 4165.

During this Patient Care course, the student is introduced to the principles of mobile, surgical, and trauma radiology. Special patient situations encountered with critical care, orthopedic and geriatric patients will also be discussed. The student will also evaluate his/her listening skills relative to patient care.

### **4167 Patient Care in Radiology IV**

1 credit hour, 2 contact hours (0 hours lecture and 2 hours lab). Prerequisite: Enrollment in the Radiographic Technology program and C grade (2.00) or better in 4147 and 4166.

During this Patient Care course the student will study basic pharmacology and radiopharmaceuticals. Recognition and acute care in specific emergency situations will be discussed. Other topics include special needs of the pediatric and disabled patients and patient education techniques.

### **4168 Patient Care in Radiology V**

1 credit hour, 2 contact hours (0 hours lecture and 2 hours lab). Prerequisite: Enrollment in the Radiographic Technology program and C grade (2.00) or better in 4148 and 4167.

The final course in the Patient Care sequence is designed to provide the student with knowledge of Electrocardiograms and monitor indications, common laboratory procedures, patient record keeping, and forensic radiology. Phlebotomy techniques will be discussed and practiced.

### **4173 MRI Image Formation and Physics**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Proof of registration with the ARRT, or permission of the instructor.

This course discusses the physics of magnetic resonance imaging and has been developed to provide individuals with backgrounds in radiology and MRI, and an in-depth understanding of MRI. The course covers the physics of MR image formation, data acquisition, and MRI Safety. This course is intended to serve as preparation for certification in the MRI field.

### **4174 MRI Pulse Sequences and Image Quality Optimization**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: 4173 or permission of the instructor.

This is the second course in the MRI physics sequence. This course discusses different pulse sequences in MRI, and their clinical image applications. Topics include: Spin Echo pulse sequences (FSE, FSEIR< IR and EPI), Gradient Echo Pulse sequences (MPGR< GRASS, SPGR, FGRE and MRA), and Cardiac MRI. The manipulation of scan parameters, such as TR, TE, NEX, matrix size, FOV and bandwidth, and their effect on image quality and scan time will be discussed. Image artifacts, their causes, and prevention will be identified.

### **4175 Imaging Procedures**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: 4174 or permission of the instructor.

This course will cover the anatomy, physiology and tissue characteristics of the head and neck, spine, thorax, abdomen, and pelvis, as well as the musculoskeletal and vascular systems. Patient positioning and contrast media considerations will be discussed. The student will identify common pathologies diagnosed on MRI images. The application of pulse sequences and data manipulation will be introduced.

### **4176 Clinical Education in MRI**

2 credit hours, 16 contact hours (0 hours lecture, 0 hours lab, and 16 hours directed practice). Prerequisites: 4174 and 4175 or permission of the instructor. This course is repeatable for a maximum of 6 hours.

This course provides MRI experience in the clinical setting. It is designed to allow the student to apply the previously learned theories and techniques of MR imaging. The student will function under the supervision and guidance of a clinical MR technologist and radiologist.

### **4180 Mammography and Breast Health**

3 credit hours, 4 contact hours (2 hours lecture and 2 hours lab). Prerequisite: Enrollment in Radiographic Technology. C grade (2.00) or better in the following: 4152 and 4185, or proof of registration with the ARRT, or permission of the instructor.

This course provides a complete overview of breast health, and the theory and practice of diagnosing and treating the patient with breast disease. Topics to be covered include the following: pathology, mammographic positioning, patient education, diagnostic intervention. Students will have the opportunity to apply classroom theory in the laboratory setting. The assurance of quality and the selection of radiation parameters will also be discussed.

### **4182 Imaging Modalities I**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiographic Technology program and C grade (2.00) or better in 4147 and 4158.

This course will discuss the basic principles of fluoroscopy, tomography, and image intensification. Digital imaging and computed radiography and other advancements in related technology will be discussed.

### **4183 Imaging Modalities II**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiographic Technology program and C grade (2.00) or better in 4148 and 4182.

This course is an overview of the imaging modalities of Computed Tomography, Magnetic Resonance Imaging, Ultrasonography, Radiation Therapy and Nuclear Medicine. Emphasis will be on general operating principles of the modality, image production and its integration into patient diagnosis.

### **4184 Principles of Radiographic Exposure**

4 credit hours, 5 contact hours (3 hours lecture and 2 hours lab). Prerequisite: Enrollment in the Radiographic Technology program and C grade (2.00) or better in 4146 and 4157.

This course is the study of the science of determining diagnostic radiographic exposure factors. Topics to be covered include: film processing, intensifying screens and cassettes, grids, scatter radiation, contrast, density, detail, distortion, and human pathology influence.

### **4185 Advanced Exposure and Quality Assurance**

3 credit hours, 5 contact hours (2 hours lecture and 3 hours lab). Prerequisite: Enrollment in the Radiographic Technology program and C grade (2.00) or better in 4139, 4158, and 4184.

The importance of quality assurance programs in the radiography department is discussed in this course. Students will be introduced to basic testing procedures of x-ray equipment. Students will analyze the finished radiograph and identify all factors which alter quality.

### **4196 Bone Densitometry**

1.5 credit hours, 1.5 contact hours (1,5 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Radiographic Technology program and a C grade (2.00) or better in 4185 or proof of registration with the ARRT or permission of the instructor or the Academic Director.

This course provides the basic principles of bone densitometry. Topics to be covered include, examination objectives, patient preparation, examination procedures and protocols, data analysis, patient education and the pathophysiology of osteoporosis. Various types of equipment, methods of data collection and radiation protection procedures will be discussed. The student will become knowledgeable about dietary and pharmacological procedures for prevention, treatment and maintenance of the disease.

### **4203 Family Health and Health Alterations**

7 credit hours, 13 contact hours (4 hours lecture and 3 hours lab, 6 hours clinical). Prerequisite: C grade (2.00) or better in the following: 4045 (or concurrent enrollment in 4045), 4219 and 4226.

The student will utilize the nursing process as a framework of care for clients across the life span groups experiencing the need for health care related to sexuality or the reproductive system. Principles of communication, interpersonal skills, biopsychosocial and pathophysiological and caring concepts are integrated during clinical experience. The student will have some clinical experiences, which will include clients exhibiting gynecological and male reproductive health alterations. Clinical experiences with obstetrical clients and the family are also included. These concepts will be applied while adhering to the legal and ethical standards of the profession. Emphasis is placed on the functional health patterns of health management, nutrition, role identity, sexuality, coping and value. Childhood illnesses and immunization schedules are included.

### **4205 Health Alterations I**

8 credit hours, 16 contact hours (4 hours lecture and 2 hours lab, 10 hours clinical). Prerequisite: C grade (2.00) or better in the following: 4026, 4049 (or concurrent enrollment in 4049), 4203 and 4220 (or 4221 for LPN to RN Plan of Study).

This course is designed to provide the student with opportunities to develop concepts, skills, and communication techniques necessary for providing therapeutic care to the mentally, physically, and cognitively impaired geriatric client as well as the client experiencing alterations in psychosocial, neurological and/or musculoskeletal functioning. Students will utilize the nursing process in writing, with emphasis on implementing and evaluating individualized plans of care for clients of all ages alterations in the following health patterns: cognitive-perceptual, coping and activity. While caring for the client in psychiatric, extended care and acute facilities, the student will demonstrate accountability, serve as a client advocate, be culturally informed and sensitive, and adhere to the legal and ethical standards of the nursing profession. Availability for clinical experience assignment is required.

### **4206 Health Alterations II**

8 credit hours, 16 contact hours (4 hours lecture and 2 hours lab, 10 hours clinical). Prerequisite: C grade (2.00) or better in the following: 4026, 4049 (or concurrent enrollment in 4049), 4203 and 4220 (or 4221 for LPN to RN Plan of Study).

This course is designed to provide the student with opportunities to develop concepts, skills, and communication techniques necessary for providing therapeutic care to culturally diverse clients of all age groups. Emphasis will be placed on clients experiencing common recurring health alterations related to the functional health patterns of nutrition, elimination, and metabolism affecting circulation, oxygenation, fluid and electrolyte homeostasis, and excretion. Students will utilize the nursing process in writing and implementing and evaluating individualized plans of care for clients. While interacting with clients in acute care outpatient settings, the student will demonstrate caring behaviors, accountability, serve as client advocate, and adhere to the legal and ethical standards of the nursing profession. Availability for clinical experience assignment is required.

### **4207 Health Alterations III**

8 credit hours, 16 contact hours (4 hours lecture and 2 hours lab, 10 hours clinical). Prerequisite: C grade (2.00) or better in the following: 4026, 4049 (or concurrent enrollment in 4049), 4203 and 4220 (or 4221 for LPN to RN Plan of Study).

This course is designed to provide the student opportunities to develop concepts, skills, and communication techniques necessary for providing therapeutic care to culturally diverse clients of all age groups. Emphasis will be placed on common recurring health alterations related to metabolism, digestion, elimination, and aberrations of cellular growth that will affect the client's functional health patterns. Students will utilize the nursing process in writing and implementing, and evaluating individualized plans of care for clients. While

interacting with clients in acute care settings, the student will demonstrate caring behaviors, accountability, serve as client advocate, and adhere to the legal and ethical standards of the nursing profession. Availability for clinical experience assignment is required.

### **4209 Transition to Practice**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: C grade (2.00) or better in 4205, 4206 and 4207 (may be concurrent enrollment in the third Health Alteration course).

This course focuses on role transition from nursing student to beginning associate degree graduate. Emphasis is on the role which includes caring behaviors, functions, and responsibilities of the nurse, legal regulations, management of client care, conflict resolutions, assertiveness, and professional responsibilities. Organizational principles, time management, and decision-making skills are also stressed. Different modalities of delivering health care in a structured environment will also be discussed.

### **4210 Applied Principles of Practice**

4 credit hours, 13 contact hours (1 hour lecture [seminar] and 12 hours lab). (NOTE: The clinical portion of this course is offered in 5 week segments; therefore the clinical contact hours will be 24 hours lab per week for 5 weeks). Prerequisite: C grade (2.00) or better in 4209 (or concurrent enrollment in 4209). S/U Graded Course.

This course promotes utilization of nursing process when meeting self-care needs of diverse clients with common and recurring health problems affecting their self-care ability. Nursing management for these clients creates opportunities for the student to practice complex psychomotor skills in a caring and culturally sensitive manner. The student will examine issues regarding transition into practice and demonstrates knowledge of organizational principles and time-management techniques for client care. The course provides the student the opportunity to function in a variety of nursing roles; provider and manager of client care, communicator, and teacher. Availability for clinical experience assignment is required. This course is graded Satisfactory/Unsatisfactory.

### **4215 Nursing Informatics**

0.5 credit hours, 1 contact hour, (0 hours lecture and 1 hour lab). Prerequisite: Admission into the AD-RN or PN Nursing Program or special permission. S/U Graded Course.

This course introduces the student to computer technology and common uses for computers in nursing. The purpose of this course is to familiarize the student with the types of computers, basic computer terminology, some basic computer programs, hospital information systems, and the Internet as they relate to nursing. The student will be able to use word processing. The student will utilize the Internet as a source of information and tool for communication. The student will also be knowledgeable about ethical issues involved in the use of computers. This course is graded Satisfactory/Unsatisfactory.

### **4216 Introduction to Nursing**

3.5 credit hours, 6.5 contact hours (2 hours lecture, 3 hours lab, and 1.5 clinical). Clinical hours will be held 3 hours per week the second term of the quarter. Prerequisite: Admission into the AD-RN or PN Nursing Program or special permission.

This course introduces the student to the philosophy and conceptual framework of the nursing program. The past, present, and future roles of nursing are explored by viewing the roles and functions of the nurse as influenced by historical and sociological factors. Concepts of caring, Orem=s theoretical framework, ethical and legal responsibilities, nursing process, functional health patterns, communication techniques, and holistic care across the lifespan are introduced. Emphasis is placed on the functional health patterns of health perception-health management, activity-exercise, sleep-rest patterns, and elimination. The student is introduced to the principles of surgical asepsis. The student will apply the nursing process while caring for clients with needs for hygiene, rest and sleep, elimination and activity. The student is expected to demonstrate characteristics of personal responsibility and legal/ethical standards of the profession.

### **4219 Fundamentals of Nursing**

5 credit hours, 9 contact hours (3 hours lecture and 3 hours lab, 3 hours clinical). Prerequisite: 1502 (or concurrent enrollment in 1502) and a C grade (2.00) or better in the following: 4216 and 4226.

In this course the student continues to gain an understanding about the concepts of Orem=s Theoretical framework, caring, wellness and illness which were first introduced into the first nursing course. The student will apply the nursing process while caring for clients with needs for hygiene, rest and sleep, and activity, and will develop the basic technical skills to provide safe care. The student builds on content presented in the first quarter and begins practicing the principles of surgical asepsis and perioperative care of the client. Emphasis is placed on the functional health patterns of coping/stress, cognitive/perceptual, nutrition/metabolic and elimination. The student is expected to demonstrate personal responsibility and ethical/legal standards of the profession.

### **4220 Pharmacology for Nursing**

4 credit hours, 6.5 contact hours (2.5 hours lecture, 3 hours lab, and 0.5 hours clinical). Prerequisite: C grade (2.00) or better in the following:(4016 or 4081) and 4216. Clinical hours will be held as two 5 hours clinical sessions.

The student will be introduced to the role of the Registered Nurse and the Practical Nurse in drug therapy for clients of all ages. Drug control laws, methods of administration, calculation of dosage, measurements, and abbreviations will be presented. This course is also designed to introduce the student to the classification of drugs and the utilization of the nursing process in identifying expected actions, common side effects, normal dosage and

routes of administration. Prototype examples will be used in each classification. Relevant assessments and teaching of clients will be included. Upon satisfactory completion of this course, the student should be able to utilize the nursing process to administer medications to a client in a safe, effective, and caring manner. In addition, each student shall satisfactorily administer medications to a group of clients.

### **4221 Applied Pharmacology for LPN to RN Students**

1 credit hour, 2 contact hours (0 hours lecture and 2 hours lab). Prerequisite: Acceptance into the LPN to RN Plan of Study.

The student will review the role of the Registered Nurse in intravenous therapy for clients of all ages. Methods of administration, calculation of dosage, measurements, and abbreviations will be presented. This course is designed to discuss the intravenous administration of those drugs frequently administered via the intravenous route. Relevant assessments will be included. Upon satisfactory completion of this course, the student should be able to utilize the nursing process to administer intravenous medications to a client in a safe, effective, and caring manner.

### **4226 Physical Assessment/Data Collection Across the Lifespan**

3 credit hours, 7 contact hours (1 hour lecture and 6 hours lab). Prerequisite: Admission into a Nursing (Registered Nursing or Practical Nursing) Technology program.

This physical assessment course introduces the student to the process of data collection, verification, analysis, and communication. The purpose of this course is for the student to develop the physical assessment and data collection skills used to determine the level of the client's wellness, health practices, past illnesses, related experiences, and health care goals as influenced by cultural and spiritual practices. Students will learn a step-by-step approach to body system observation, how to differentiate normal from abnormal findings, and recognize and support patterns of self-care which promote health for clients across the life span. The roles of the Registered Nurse and the Licensed Practical Nurse in physical assessment/data collection will be discussed and differentiated. This course will introduce the student to the language of medical terminology. The student will be expected to utilize such language, and appropriate medical abbreviations in the classroom, laboratory, and health care settings. The student is expected to obtain and maintain personal responsibility and legal/ethical standards of the profession.

### **4286 Basic Cardiac Arrhythmia Interpretation**

1 credit hour, 1 contact hour (1 hour lecture and 0 hours lab). Prerequisite: None.

This course is designed to provide students with ECG monitoring skills. Importance is placed on understanding heart anatomy and electrophysiology, as well as learning the importance of identification of arrhythmias from the atrial, junctional, and ventricle heart sites. Heart blocks and paced rhythms will also be emphasized. Students will be able to

differentiate normal, abnormal, and life-threatening arrhythmias.

### **4289 Maternal/Child Nursing Review**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Enrollment in the third Health Alteration course. Open to any registered nurse who wants to review Maternal-Child Nursing. S/U Graded Course.

This course is designed as a review of Maternal/Child Nursing for both current students and practicing nurses who desire to update their knowledge in this field. Maternal-newborn content includes fetal development, nursing assessment and care during pregnancy, birth, and post-partum and newborn care. The course focuses on the normal maternal cycle as well as the commonly recurring complications. This course also focuses on commonly recurring deviations during the neonatal period. This course is graded on a Satisfactory/Unsatisfactory basis.

### **4291 Health Data Collection**

1 credit hour, 1 contact hour (1 hour lecture and 0 hours lab). Prerequisite: STNA, 4015, 4025 and MST. Not open to students with credit for 4226.

The student begins to identify data collection as it relates to health care. Concepts introduced include health and wellness, functional areas important to observe, the ability to implement safe observations, and specialized aspects of data collection. The importance of prevention in health care is also explored as it relates to an optimum level of health for individuals.

### **4293 Phlebotomy for Health Workers**

2 credit hours, 3 contact hours (1 hour lecture and 2 hours lab). Prerequisite: Licensure as a registered nurse or a licensed practical nurse, completion of 4015 or working in health care.

This course is intended for health care workers, particularly nurses needing additional skills in phlebotomy. As nursing's focus broadens, more preparation in skills becomes necessary to meet new challenges. Phlebotomy will focus on being familiar with obtaining, preparing, labeling, and sending all specimens for analysis. Normal ranges of routine laboratory testing will be discussed and reviewed. Universal precautions as a necessity for future health will be stressed.

### **4295 Advanced Intravenous Therapy**

2 credit hours, 3 contact hours (1 hour lecture and 2 hours lab). Prerequisite: Level 2 Nursing Student or Registered Nurse.

This elective course is designed to provide the learner with advanced skills in the care of

the client receiving intravenous therapy. Information regarding special intravenous therapies utilized in institutional and home care environment will be presented. The student will be introduced to administration techniques via central venous access devices (Central Venous Catheters, PICC lines, Infusaports, etc.).

### **4296 Cardiac Arrhythmia Interpretation**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: C grade (2.00) or better in 4016 and 4026.

This course is designed to provide students with ECG monitoring skills, providing a more advanced level of cardiac care to clients of all ages and cultural groups. Importance is placed on understanding of heart anatomy and electrophysiology, as well as learning about the identification of arrhythmias at the atrial, junctional, and ventricle heart sites. Heart blocks and paced rhythms will also be emphasized. Students will be able to differentiate normal, abnormal, and life-threatening arrhythmias, and by the process of critical thinking, determine the correct treatment for each.

### **4297 Case Management for the Nursing Professional**

4 credit hours, 4 contact hours (4 hours lecture and 0 hours lab). Prerequisite: Course is open to registered nurses, licensed practical nurses, graduate nurses, student nurses from Level II of the COTC curriculum, student nurses from other programs as space is available.

This course is designed to provide the student nurse/RN with the concepts and skills needed to function as a case/care manager. The origin and definition of case management will be discussed. Emphasis will be placed on development and use of case management techniques and use of critical pathways. Case management implementation in acute, long term, and community settings will be explored.

### **4298 Role Socialization**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Admission as an articulation/transfer/LPN to RN student into the COTC Nursing Technology program. S/U Graded Course. 4298 will count neither for elective credit nor toward meeting minimum credit hours for graduation.

A course designed for the LPN/transfer student who is admitted to the Nursing Technology program with advanced placement. This orientation program will introduce the transfer student or LPN to the Registered Nurse program of learning and to the role of the registered nurse. The nursing process will be explained and clarified. Charting responsibilities will be discussed. A review/update of selected psychomotor skills will be included. Opportunity will be provided to discuss role overload/stress management. The student is expected to demonstrate characteristics of personal responsibility and ethical/legal standards of the profession. This course is graded on a Satisfactory/Unsatisfactory basis and credit for 4298 will count neither for elective credit nor

toward meeting minimum credit hours for graduation.

### **4299 NCLEX RN Preparation**

1 credit hour, 7 contact hours (Miscellaneous Applications Course--1 credit hour awarded per 7 contact hours of work per week). Prerequisite: Successful completion of all of the Nursing Technology program with the exception of 4209 and 4210. May be concurrently enrolled in 4209 or 4210. S/U Graded Course.

Students will utilize the nursing process as a framework for review of care for clients across the lifespan experiencing the need for health care. Principles of communication, interpersonal skills, biopsychosocial, spiritual, and pathophysiological and caring concepts will be reviewed. Emphasis will be placed on the functional health patterns and management of health alterations. This course is graded on a Satisfactory/Unsatisfactory basis.

### **4345 EMS Intermediate**

4 credit hours, 5 contact hours (3 hours lecture and 2 hours lab). Prerequisite: Current State of Ohio Certification as an EMT-Basic; Asset or Compass scores (reading, writing and mathematics) for placement into college level courses; Selective Admission based upon highest scores on COTC Assessment Tests of EMT-Basic knowledge and skills (written and practical tests) and personal interview.

The EMS Intermediate course will present the medical practice act, rules and responsibilities of the EMS-Intermediate. The course builds upon the skills and knowledge of the EMS-Basic by adding advanced airway management, intravenous fluid therapy, and an introduction to cardiac monitoring, interpretation of electrocardiograms and manual defibrillation.

### **4346 EMS Intermediate Practicum**

1 credit hours, 5 contact hours (1 hour lecture and 0 hours lab, 4 hours practicum). Prerequisite: B grade (3.00) or better in 4345 (or concurrent enrollment in 4345).

This course is designed to provide practical experience in combined clinical experience and prehospital internship. The student will work in a clinical setting and prehospital services where he/she will learn agency procedures and demonstrate the required emergency medical techniques to meet all EMS standards for EMS-Intermediate.

### **4351 EMS Paramedic I**

8.5 credit hours, 9.5 contact hours (7.5 hours lecture and 2 hours lab). Prerequisite: Acceptance into the EMS-Paramedic program and concurrent enrollment in 4352.

The student will study the roles, responsibilities, and duties of an EMS-Paramedic including

professional ethics and behavior. The preparatory stages relative to the functioning of an EMS-Paramedic will be presented. The course will include instruction in the management and care of trauma emergencies, burns, and respiratory emergencies.

### **4352 EMS Paramedic Practicum I**

2 credit hours, 10.5 contact hours (1 hour lecture, 0 hours lab, and 9.5 hours practicum). Prerequisite: Acceptance into EMS-Paramedic program and concurrent enrollment in 4351 or a C grade (2.00) or better in 4351.

This course is designed to provide practical experience in combined clinical and prehospital settings where the student will learn agency protocols and procedures. During these practical experiences the student will demonstrate the required emergency medical techniques associated with trauma emergencies, burns, and respiratory emergencies that meet the EMS standards of the State of Ohio for the EMS-Paramedic.

### **4353 EMS Paramedic II**

8 credit hours, 9 contact hours (7 hours lecture and 2 hours lab). Prerequisite: C grade (2.00) or better in 4351 and 4352 and concurrent enrollment in 4354.

This course will provide instruction in the recognition, management and care of cardiovascular emergencies. The anatomy and physiology of the cardiovascular system, recognition of dysrhythmias, assessment of the cardiac patient, and the pathophysiology of cardiovascular disease will be presented.

### **4354 EMS Paramedic Practicum II**

2 credit hours, 10.5 contact hours (1 hour lecture, 0 hours lab and 9.5 hours practicum). Prerequisite: C grade (2.00) or better in 4351 and 4352 and concurrent enrollment in 4353.

As a continuation practicum experience in combined clinical and prehospital settings, the student will continue to learn agency protocols and procedures. During these practical experiences the student will demonstrate the required emergency medical techniques that meet all EMS standards of the State of Ohio for the EMS Paramedic with emphasis on cardiovascular emergencies. The student will continue to broaden his/her experiences with trauma emergencies, burns and respiratory emergencies.

### **4355 EMS Paramedic III**

8 credit hours, 9.25 contact hours (7.25 hours lecture and 2 hours lab). Prerequisite: C grade (2.00) or better in 4353 and 4354 and concurrent enrollment in 4356.

The course will provide instruction in the recognition, management, and care of endocrine and metabolic emergencies, nervous system emergencies, gastrointestinal system emergencies, genitorinary system emergencies, reproductive system emergencies,

anaphylaxis, toxicology and substance abuse, infectious diseases, environmental emergencies, obstetrical and gynecological emergencies, neonatal emergencies, and behavioral and psychiatric emergencies. Emergency management and care of the elderly patient, the pediatric patient, the neonatal patient, and the psychiatric and behavioral patient will be presented.

### **4356 EMS Paramedic Practicum III**

2 credit hours, 10.5 contact hours (1 hour lecture, 0 hours lab and 9.5 hours practicum). Prerequisite: C grade (2.00) or better in 4353 and 4354 and concurrent enrollment in 4355.

As the final practical experience in the combined clinical and prehospital settings, the student will continue to learn agency protocols and procedures. During these practical experiences the student will demonstrate the required emergency medical techniques that meet all EMS standards of the State of Ohio for the EMS Paramedic. The student will continue to perfect his/her abilities in responding to trauma emergencies, burns, medical emergencies, obstetrical and gynecological emergencies, psychiatric emergencies, and in providing care to a diverse population.

### **4390 Epinephrine Administration and Cardiac Emergencies**

1.5 credit hours, 2 contact hours (1 hour lecture and 1 hour lab). Prerequisite: State certified EMS-Basic which is current at the time of enrollment.

The EMS Intermediate will present the medical practice act, rules and responsibilities of the EMS Intermediate. The course builds upon the skills and knowledge of the EMS Basic by adding advanced airway management, intravenous fluid therapy, and an introduction to cardiac monitoring, interpretation of electrocardiograms and manual defibrillation.

### **4470 Kinesiology for Personal Fitness Training**

5 credit hours, 7 contact hours (3 hours lecture and 4 hours lab). Prerequisite:

This course is designed to teach human kinesiology to the student interested in personal fitness training. The course will emphasize the function of muscles and joints in human performance and stress both open and closed chain concepts in training. Each major muscle group will be analyzed and the basics of kinesiology will be explained as it relates to correct performance. Through lecture, discussion and lab sessions the student will learn to apply biomechanical principles to function.

### **4471 Strength and Conditioning**

5 credit hours, 7 contact hours (3 hours lecture and 4 hours lab). Prerequisite:

This course teaches safe, effective principles in muscular strength and conditioning of the human body. Aerobic conditioning, strength endurance, and agility training principles will

be covered in both lecture and lab sessions. The student will have hands-on experience in techniques, procedures, and guidelines of weight training, cardiovascular training, endurance training and agility training. The emphasis will be safety and problem solving approaches to successful training. Specific nutrition topics will be covered in depth as they relate to the personal fitness scope of practice.

#### **4472 Assessment and Development of the Training Plan**

5 credit hours, 5 contact hours (5 hours lecture and 0 hours lab). Prerequisite:

This course is designed to introduce the student to the principle of assessing clients, developing a personal training plan, executing the plan, and revising the plan as the client achieves the goals. It stresses safe, functional training technique application to the specific client populations. Aerobic training regimens, strength and conditioning regimens, and endurance regimens are applied to real client situations and are chosen based on the assessment process. The plan design will include nutrition, appropriate practice scope as it relates to other professions as well. The student will be able to design an assessment tool and execute a plan at the conclusion of the class.

#### **4473 Personal Training Special Problems**

5 credit hours, 5 contact hours (5 hours lecture and 0 hours lab). Prerequisite:

The student will learn to adapt training programs to a variety of conditions including chronic diseases, post surgery or rehab, birth injuries, amputations, neurological disorders, etc. Principles learned in anatomy, kinesiology, and training courses will be applied to clients with physical compromises. The lecture and lab format will allow the student to have hands-on practice with adaptive devices, equipment adaptations for special conditions and other situations. The student will learn to prepare a fitness plan for clients that involves assessment and appropriate referral of clients given the results of the assessment.

#### **4474 Practical Problems in Training**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite:

Under the supervision of a personal trainer, the student will develop specific training programs for clients in an on site situation. The on site experiences will allow the student to apply previously learned principles to actual client situations. Classroom activities will focus on time management, interpersonal communications, conflict resolution, experience with patient scheduling, appropriate referral and understanding of the scope of practice and use of resources.

#### **4475 Business and Planning for Personal Fitness Training**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite:

This course is a lecture format that educates the student in the business of personal training. It stresses salesmanship, business plan development, advertising and marketing as they apply specifically to the personal training business. Specific interview skills, interpersonal skill application to client relationships, ethics and business development will be discussed.

### **4476 Anatomy for Personal Fitness Training**

5 credit hours, 7 contact hours (3 hours lecture and 4 hours lab). Prerequisite:

This course is designed to teach human anatomy to the student interested in personal training. The course will emphasize the function of muscles and joints in human performance and stress hands-on practice with cadavers and models. Each major muscle group, nerve complex, and circulatory complex will be studied in detail. Through lecture and lab sessions the student will learn human musculoskeletal anatomy in detail.

### **4504 Superficial Small Parts**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. C grade (2.00) or better in 4505 and concurrent enrollment in 4510, 4516 and 4544 or permission of the instructor.

This course discusses sonographic imaging of the breast, thyroid, scrotum, popliteal fossa, prostate, eye, peripheral vascular system, and musculoskeletal system. Emphasis is on anatomy, physiology, pathology, interpretation of clinical data, differential diagnosis and sonographic techniques relative to superficial small parts.

### **4505 Abdominal Sonography**

5 credit hours, 5 contact hours (5 hours lecture and 0 hours lab). Prerequisite: Must be accepted in the Diagnostic Medical Sonography Technology program and must maintain a C grade or better in all technology courses. C grade (2.00) or better in the following: 4016, 4026 and 4511, or concurrent enrollment in 4507, 4515 and 4542.

This course covers sonographic imaging of the liver, gallbladder, biliary tree, pancreas, kidneys, adrenal glands, spleen, lymph nodes and abdominal vascular system. Emphasis is on anatomy, physiology, pathology, interpretation of clinical data, differential diagnosis and sonographic techniques relative to the abdomen.

### **4507 Gynecological Sonography**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Must be accepted to the Diagnostic Medical Sonography Technology program and must maintain a C grade (2.00) or better in all technology courses. C grade (2.00) or better in the following: 4016, 4026 and 4511, or concurrent enrollment in 4505, 4515 and 4542.

This course emphasizes the fundamental principles of sonographic imaging of the female pelvis. Anatomy, physiology, pathology, interpretation of clinical data, differential diagnosis and sonographic techniques relative to the gynecological patient are presented.

### **4509 Sonography Seminar**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. C grade (2.00) or better in 4546 and concurrent enrollment in 4549, or permission of the instructor.

This course provides correlation between previously learned sonographic concepts and clinical application. It is designed to aid the transition to entry-level sonographer. General topics include sonographic procedures, image production and evaluation, equipment operation and maintenance, patient care, literature reviews, recent developments in diagnostic techniques and future directions of the profession.

### **4510 Obstetrical Sonography**

5 credit hours, 5 contact hours (5 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. C grade (2.00) or better in 4507 and concurrent enrollment in 4504, 4516 and 4544.

This course provides an extensive study of the anatomy, physiology, pathology, and sonographic appearance of the developing fetus. Specific sonographic protocols for obstetrical sonography are included. Clinical presentation and maternal complications associated with pregnancy are also emphasized.

### **4511 Cross Sectional Anatomy**

3 credit hours, 4 contact hours (2 hours lecture and 2 hours lab). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology or the Radiographic Technology programs. C grade (2.00) or better in the following: 4016, 4026 and (4027 and 4028 [or 4037 and 4038] or equivalent), or permission of the instructor.

This course is designed to provide the student with specific knowledge of relational and sectional anatomy of the head, thorax, abdomen, pelvis, and extremities. The college laboratory sessions are utilized to study human material and to correlate with radiologic and/or sonographic images.

### **4512 Neurosonography**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Current enrollment in the Diagnostic Medical Sonography Technology program as a One-Year Certificate student or a second year Associate Degree student, RDMS, RDMS registry eligibility, or permission of the instructor.

This course provides the advanced sonographer a study of embryology, anatomy, physiology, and sonographic appearance of the nervous system. Specific protocols for neonatal neurosonography are included. Intraoperative and spinal sonography will also be discussed.

### **4514 Principles of Diagnostic Sonography**

1 credit hour, 1 contact hour (1 hour lecture and 0 hours lab). Prerequisite: Must be accepted in the Diagnostic Medical Sonography Technology program and must maintain a C grade (2.00) or better in all technology courses or permission of the instructor.

This is the introductory course to the Diagnostic Medical Sonography sequence. Topics included in the course are the health care delivery system, professional communication and conduct, organizations, history of ultrasound, the sonographer's role and basic scanning protocols.

### **4515 Sonographic Physics and Instrumentation I**

4 credit hours, 5 contact hours (3 hours lecture and 2 hours lab). Prerequisite: Must be accepted in the Diagnostic Medical Sonography Technology program and must maintain a C grade (2.00) or better in all technology courses. C grade (2.00) or better in 1210 (or equivalent) and concurrent enrollment in (4505, 4507 and 4542) or (4561, 4565 and 4567).

This course deals with the fundamental principles of sonographic physics. Topics such as the nature of waves, wave properties, interactions of ultrasound with tissue, ultrasonic beam parameters and basic Doppler principles are covered. Students will have an opportunity to apply these principles in the college laboratory setting.

### **4517 Sonographic Physics and Instrumentation III**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in the Diagnostic Medical Sonography Technology program and must maintain a C grade (2.00) or better in 4519 and concurrent enrollment in (4546 or 4563) or permission of the instructor.

This course concludes the sonographic physics instrumentation sequence. Topics such as artifacts, storage devices, biological effects of ultrasound, and quality assurance testing will be discussed.

### **4518 Doppler Physics and Instrumentation**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Permission of the instructor.

This course deals with the fundamental principles of Doppler physics and instrumentation. Topics such as hemodynamics, pulsed wave Doppler, continuous wave Doppler, spectral

analysis, color Doppler, power Doppler, Doppler instrumentation, and artifacts will be discussed. This course is designed for the sonography student not completing the 4515, 4516 and 4517 Sonographic Physics and Instrumentation sequence.

### **4519 Sonographic Physics and Instrumentation II**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in the Diagnostic Medical Sonography program and must maintain a C grade (2.00) or better in 4515 and concurrent enrollment in (4504, 4510 and 4544) or (4562, 4566 and 4568) or permission of the instructor.

This course applies the fundamental principles of sonographic physics of specific ultrasound instrumentation. Topics such as transducer design, equipment controls and instrumentation for static, real-time and Doppler systems will be discussed. The student will have the opportunity to apply these principles in the clinical laboratory setting.

### **4520 Obstetrical Sonography Lab**

1 credit hour, 2 contact hours (0 hours lecture and 2 hours lab). Prerequisite: C grade (2.00) or better in 4510 or permission of the instructor.

This is a continuation course in the study of anatomy, physiology, pathology and sonographic appearance of the developing fetus. The emphasis will be on hands-on application. A variety of media tools will be used to correlate didactic findings with sonographic views.

### **4541 Principles of Clinical Sonography**

2 credit hours, 9 contact hours (1 hour lecture and 0 hours lab, 8 hours clinical). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. C grade (2.00) or better in the following: 4026, 4044, 4511 and 4514 and a valid CPR card.

An introductory experience to the clinical setting in which students have an opportunity to observe concepts and techniques related to sonographic imaging and patient care. Students will function under the close supervision of qualified sonographers or physicians in hospitals and other health related facilities. A weekly one hour seminar focusing on specific case studies will be conducted.

### **4542 Clinical Sonography I**

3 credit hours, 17 contact hours (1 hour lecture and 0 hours lab, 16 hours clinical). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. (C grade (2.00) or better in 4541) or (acceptance into the one-year DMS program), concurrent enrollment in 4505, 4507 and 4515 and a valid CPR card.

This initial scanning experience in the clinical setting provides the students with the

opportunity to apply learned concepts and techniques related to sonographic imaging. Students will function under the close supervision of qualified sonographers or physicians in hospitals and other health related facilities. A weekly one hour seminar focusing on specific case studies will be conducted.

### **4544 Clinical Sonography II**

4 credit hours, 25 contact hours (1 hour lecture and 0 hours lab, 24 hours clinical). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. C grade (2.00) or better in 4542, concurrent enrollment in 4504, 4510 and 4516 and a valid CPR card.

During this clinical course, students will gain practical experience and develop individual scanning techniques related to sonographic imaging. Students will function under the close supervision of qualified sonographers or physicians in hospitals and other health related facilities. A weekly one hour seminar focusing on specific case studies will be conducted.

### **4546 Clinical Sonography III**

4 credit hours, 25 contact hours (1 hour lecture and 0 hours lab, 24 hours clinical). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. C grade (2.00) or better in 4544 and a valid CPR card.

This course provides more advanced experience in the clinical setting in which the student will improve upon previously learned skills and techniques related to sonographic imaging. Students will function under the close supervision of qualified sonographers or physicians in hospitals and other health related facilities. A weekly one hour seminar focusing on specific case studies will be conducted.

### **4549 Clinical Sonography IV**

6 credit hours, 33 contact hours (1 hour lecture and 0 hours lab, 32 hours clinical). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. C grade (2.00) or better in 4546, concurrent enrollment in 4509 and a valid CPR card.

This final clinical experience emphasizes mastery of skills in all areas of medical sonography. The course is designed to challenge the student to function independently within the supervised clinical setting, tailoring each examination according to the specific guidelines of each case. A weekly one hour seminar focusing on specific case studies will be conducted.

### **4560 Principles of Cardiovascular Clinical**

2 credit hours, 9 contact hours (1 hour lecture and 0 hours lab, and 8 hours clinical). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. C grade (2.00) or better in 4016, 4026, 4044, 4511 and 4514 and a valid CPR card.

An introductory experience to the cardiovascular clinical setting in which students have an opportunity to observe concepts and techniques related to cardiovascular imaging and patient care. Students will function under the close supervision of qualified sonographers or physicians in hospitals and other health related facilities. A weekly one hour seminar focusing on specific case studies will be conducted.

### **4561 Cardiovascular Clinical I**

3 credit hours, 17 contact hours (1 hour lecture and 0 hours lab, 16 hours clinical). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. (C grade [2.00] or better in 4560) or (acceptance into the One-Year Cardiovascular DMS program and concurrent enrollment in 4515, 4565 and 4567) and a valid CPR card.

This initial scanning experience in the clinical setting provides the students with the opportunity to apply learned concepts and techniques related to cardiovascular imaging. Students will function under the close supervision of qualified sonographers or physicians in hospitals and other health related facilities. A weekly one hour seminar focusing on specific case studies will be conducted.

### **4562 Cardiovascular Clinical II**

4 credit hours, 25 contact hours (1 hour lecture and 0 hours lab, 24 hours clinical). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. C grade (2.00) or better in 4561, concurrent enrollment in 4516, 4566 and 4568 and a valid CPR card.

During this clinical course, students will gain practical experience and develop individual scanning techniques related to cardiovascular imaging. Students will function under the close supervision of qualified sonographers or physicians in hospitals and other health related facilities. A weekly one hour seminar focusing on specific case studies will be conducted.

### **4563 Cardiovascular Clinical III**

4 credit hours, 25 contact hours (1 hour lecture and 0 hours lab, 24 hours clinical). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. C grade (2.00) or better in 4562, concurrent enrollment in 4041, 4056, 4126 and 4517, and a valid CPR card.

This course provides more advanced experience in the clinical setting in which the student will improve upon previously learned skills and techniques related to cardiovascular imaging. Students will function under the close supervision of qualified sonographers or physicians in hospitals and other health related facilities. A weekly one hour seminar focusing on specific case studies will be conducted.

### **4564 Cardiovascular Clinical IV**

6 credit hours, 33 contact hours (1 hour lecture and 0 hours lab, 32 hours clinical). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. C grade (2.00) or better in 4563, concurrent enrollment in 4569 and a valid CPR card.

This final clinical experience emphasizes mastery of skills in cardiovascular sonographic imaging. The course is designed to challenge the student to function independently within the supervised clinical setting, tailoring each examination according to the specific guidelines of each case. A weekly one hour seminar focusing on specific case studies will be conducted.

### **4565 Echocardiography I**

4 credit hours, 4 contact hours (4 hours lecture and 0 hours lab). Prerequisite: Must be accepted in the DMS program and must maintain a C grade (2.00) or better in all technology courses (C grade [2.00] or better in the following: 4016, 4026 and 4511) and (concurrent enrollment in 4515, 4567 and 4561) or permission of the instructor.

This course will review cardiac anatomy and physiology. B-mode, M-mode, and Doppler testing in the detection of valvular, pericardial and ischemic heart disease will be discussed. EKG and Holter monitoring will also be studied.

### **4566 Echocardiography II**

4 credit hours, 4 contact hours (4 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. C grade (2.00) or better in 4565, concurrent enrollment in 4516, 4562 and 4568, or permission of the instructor.

This course will continue the sonographic evaluation of cardiac pathophysiology including the speciality examinations of transesophageal, stress, and contrast studies. An introduction to fetal and pediatric echocardiography will also be discussed.

### **4567 Vascular Sonography I**

4 credit hours, 4 contact hours (4 hours lecture and 0 hours lab). Prerequisite: Must be accepted in the DMS program and must maintain a C grade (2.00) or better in all technology courses. (C grade [2.00] or better in the following: 4016, 4026 and 4511) and (concurrent enrollment in 4515, 4561 and 4565) or permission of the instructor.

This course emphasizes the sonographic evaluation of the peripheral vascular system. Non-invasive testing of the upper and lower extremity vessels and disease processes will be studied. Plethysmography, duplex, pulsed and continuous wave Doppler testing will be introduced.

### **4568 Vascular Sonography II**

4 credit hours, 4 contact hours (4 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. C grade (2.00) or better in 4567, concurrent enrollment in 4516, 4562 and 4566, or permission of the instructor.

This course continues the sonographic evaluation of vascular disease including the intracranial and extracranial vascular systems. A comprehensive approach to sonographic technique including transcranial scanning will be studied.

### **4569 Cardiovascular Seminar**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. C grade (2.00) or better in 4563 and concurrent enrollment in 4564.

This course provides correlation between previously learned sonographic concepts and clinical application. It is designed to aid the transition to entry-level sonographer and ARDMS preparation. The student must successfully complete a comprehensive examination.

### **4570 Introduction to Pediatric Echocardiography**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. C grade (2.00) or better in 4565 and 4566 and concurrent enrollment in 4517 and 4563 or permission of the instructor.

This course covers the sonographic imaging of the pediatric heart with emphasis on embryology, anatomy, pathology, physiology, interpretation of clinical data, differential diagnosis and sonographic techniques relative to the pediatric cardiac patient in an adult cardiac facility. Topics such as congenital pathology, acquired pathology, surgical repair of congenital heart disease and fetal echocardiography will be discussed.

### **4580 Breast Sonography**

1 credit hour, 1 contact hour (1 hour lecture and 0 hours lab). Prerequisite: C grade (2.00) or better in 4504 and 4505.

This course will cover the normal anatomy, physiology and pathology of the breast. Sonographic appearance of the normal breast, benign breast disease, and malignancies will be introduced. Various invasive and related imaging techniques will also be discussed. Emphasis is on correlation of clinical data, related imaging techniques and sonographic appearance to determine differential diagnosis.

### **4590 Special Topics in Clinical Sonography**

2 credit hours, 6 contact hours (1 hour lecture and 5 hours lab). Prerequisite: Acceptance

into the Diagnostic Medical Sonography Technology One-Year program; must be a graduate of the COTC Radiographic Technology program and hold a valid CPR card.

A unique experience in various clinical settings in which students have an opportunity to observe concepts and techniques related to ultrasound imaging and patient care. Students will function under the close supervision of qualified sonographers or physicians in hospitals and other health related facilities. A weekly one hour seminar focusing on specific case studies will be conducted.

### **4591 Current Issues in Sonography**

0.5 credit hours, 6 contact hours (0 hours lecture, 0 hours lab, and 6 hours directed practice). Prerequisite: Second Year Status in DMS. Only open to individuals who have college credit for a general course in Current Issues in Healthcare or have not taken a current issues course within the past five years.

This course deals with current issues relevant to sonographic imaging departments and personnel. During the course topics specific to Diagnostic Medical Sonography such as lab accreditation, new techniques in sonography, and the profile of a professional sonographer will be reviewed.

### **4601 Pharmacology for Surgical Assisting**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: C grade or better (2.00) in 4016 and 4026.

The student will be introduced to the study of pharmacology for patients of all ages. The role of the surgical assistant, drug control laws, methods of preparation, and abbreviations will be presented. This course is designed to introduce the student to the classifications of drugs, identification of expected actions and uses, common adverse effects, normal dosage ranges, and routes of administration. Prototype examples will be used in each classification. Relevant assessments of patients will be included. Upon satisfactory completion of this course the student should be able to understand and prepare medications for the safe administration to patients.

### **4604 Basic Case Preparation**

3 credit hours, 4 contact hours (2 hours lecture and 2 hours lab). Prerequisite: C grade (2.00) or better in 4005 and 4602.

Basic instrumentation, surgical equipment and supplies, sutures and stapling devices will be discussed and demonstrated. Students will learn the proper care, handling, use and assembly of instruments and equipment. Also discussed during this course will be draping techniques and maintenance of the sterile field.

### **4610 Professional Trends and Issues in Surgical Technology**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: C grade (2.00) or better in 4026, 4605, 4606 and 4607.

This course is designed to prepare the student for the workplace. Topics discussed will be: factors that affect the student's personal life, professional relations and organizations, preparation for the national certification examination, types of health care delivery agencies, accrediting agencies and job seeking skills.

### **4611 Surgical Technology Skills Review**

2 credit hours, 4 contact hours (1 hour lecture and 3 hours lab). Prerequisite:

The purpose of this elective course is to emphasize the importance and maintenance of Surgical Technology skills. Since the learners are not engaged in the academic plan during summer quarter, they may tend to lose skills that were taught earlier. This course will give the learners the opportunity to practice skills acquired during the first two quarters in the laboratory settings. In this course, the learners will be exposed to the laboratory practice, specialty instruments, and procedures. As a part of this course, the students will also take field trips to other hospitals and surgery centers.

### **4612 Fundamentals of Surgical Technology**

5 credit hours, 7 contact hours (3 hours lecture and 4 hours lab). Prerequisite: Admittance into the Surgical Technology program.

This course is an introduction to surgical technology. Different types of health care facilities, the roles of the different surgical team members and aspects of the physical environment of the surgical suite are studied. The history of the development of surgery as well as ethical, moral, and legal responsibilities are discussed. In this course the student will also discuss communication skills, interpersonal and interdepartmental relationship skills needed. Included in this course will be an opportunity to shadow a surgical technologist in surgery.

### **4613 Patient Care Concepts**

5 credit hours, 7 contact hours (3 hours lecture and 4 hours lab). Prerequisite: C grade (2.00) or better in 4005 and (4602 OR 4612).

This course is designed to enable the student to become skilled in assisting with the preparation, transportation, positioning, and anesthesia of the surgical patient. Skills included in this course are: aseptic technique, positioning, skin preparation, care of specimens, use of thermoregulatory devices, vital signs, handling of blood replacement components, urinary catheterization, and emergency procedures.

### **4615 Surgical Procedures I**

5 credit hours, 17 contact hours (2 hours lecture, 0 hours lab, and 15 hours clinical). Prerequisite: C grade (2.00) or better in (4603 or 4613) and 4604 and concurrent enrollment (or C grade [2.00] or better in) 4003 and 4601.

This course is designed to acquaint the student with the operating room procedures and techniques necessary to function as an assistant in the operating room. Discussed during this course will be the relevant anatomy, indications for surgery, special equipment and supplies, purpose and expected outcome and possible complications for procedures in the following surgical specialities: general and gastrointestinal, obstetric and gynecologic, and orthopedic. Students will have clinical experiences in the above areas, functioning as a second scrub, first scrub, or assistant circulator under the supervision of a certified surgical technologist or registered nurse.

### **4616 Surgical Procedures II**

5 credit hours, 17 contact hours (2 hours lecture, 0 hours lab, and 15 hours clinical). Prerequisite: C grade (2.00) or better in (4605 or 4615).

This course is an extension of Surgical Procedures I. Discussed during this course will be the relevant anatomy, indications of surgery, special equipment and supplies, purpose and expected outcome and possible complications for procedures in the following surgical specialities: ophthalmic, ear/nose/throat, dental/oral/maxillofacial, plastic and reconstructive and neurological surgery. Students will have clinical experiences in the above areas, functioning as a second scrub, first scrub, or assistant circulator under the supervision of a certified surgical technologist or registered nurse.

### **4617 Surgical Procedures III**

5 credit hours, 17 contact hours (2 hours lecture, 0 hours lab, and 15 hours clinical). Prerequisite: C grade (2.00) or better in 4016 and (4606 or 4616).

This course is an extension of Surgical Procedures II. Discussed during this course will be the relevant anatomy, indications of surgery, special equipment and supplies, purpose and expected outcome and possible complications for procedures in the following surgical specialities: thoracic, cardiovascular, peripheral vascular, and urologic. Students will have clinical experiences in the above areas, functioning as a second scrub, first scrub, or assistant circulator under the supervision of a certified surgical technologist or registered nurse.

### **4619 Advanced Surgical Technician Practice**

5 credit hours, 17 contact hours (2 hour lecture, 0 hours lab, and 15 hours clinical). Prerequisite: C grade (2.00) or better in 4026, (4605 or 4615), (4606 or 4616) and (4607 or 4617).

This course will be offered as a five week term course focusing on continuing surgical theory. It provides study of special problems that correlate with the individual needs and interests of the student during clinical practice as well as preparation to write the national certification examination. Clinical supervised practice is an integral part of this course.

### **4620 Surgical Technology Seminar**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: 4610, 4618 and 4619.

This course is designed to provide the correlation between previously learned surgical concepts and clinical application. It is designed to aid in transition from Surgical Technology student to entry level Surgical Technologist. Topics discussed in this course include: general, OB/GYN, vascular, G.U., cardiothoracic, plastic and ophthalmology surgery. Requirements for ethical and legal practice as defined by the National Association of Surgical Technologists will be reviewed and discussed.

### **4621 Pediatric Surgery**

3 credit hours, 7 contact hours (2 hour lecture and 5 hours lab). Prerequisite: C grade (2.00) or better in 4026, (4605 or 4615), (4606 or 4616) and (4607 or 4617).

This course is designed to acquaint the student with the pediatric patient and a variety of surgical procedures unique to the pediatric patient. Clinical experiences will emphasize adapting pediatric concepts in the surgical setting.

### **4625 Specialty Surgical Practice**

5 credit hours, 17 contact hours (2 hours lecture, 0 hours lab and 15 hours clinical). Prerequisite: 4619.

This course is a continuation of 4620 with additional surgical specialties presented. For example: Transplant surgery, trauma, ophthalmology, cardiac surgery, orthopedic, plastic, and neurology surgery. The student will select two specialty areas and specialize in those areas. The student will be expected to transfer and build on previous content and experiences.

### **4631 Fundamentals of Surgical Technology**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Admittance into the Surgical Technology program and concurrent enrollment in 4632.

This course is an introduction to surgical technology. Different types of health care facilities, the roles of the different surgical team members and aspects of the physical environment of the surgical suite are studied. The history of the development of surgery as well as ethical, moral, and legal responsibilities are discussed. In this course the student

will also discuss communication skills, interpersonal and interdepartmental relationship skills needed.

### **4632 Fundamentals of Surgical Technology Laboratory**

2 credit, 4 contact hours (0 hours lecture and 4 hours lab). Prerequisite: Admittance into the Surgical Technology program and concurrent enrollment in 4631.

During the laboratory exercise the students will practice sterile techniques, be introduced to surgical instrumentation, operating room equipment and creating a sterile field. Included in this course will be an opportunity to shadow a surgical technologist in surgery.

### **4633 Patient Care Concepts**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: C grade (2.00) or better in high school biology or equivalent and concurrent enrollment in 4634.

The student will be introduced to the layout of the operating room suite, sterile and sub-sterile area. The importance of skin preparation, transportation, positioning and anesthesia of surgical patients will be present. The student will also be introduced to aseptic technique, care of specimen, use of thermoregulatory devices, vital signs, handling of blood replacement components, urinary catheterization, and emergency procedures.

### **4634 Patient Care Concepts Laboratory**

2 credit hours, 4 contact hours (0 hours lecture and 4 hours lab). Prerequisite: C grade (2.00) or better in high school biology or equivalent and concurrent enrollment in 4633.

This course is designed to enable the student to become skilled in assisting with the preparation, transportation, positioning, and anesthesia of the surgical patient. Skills included in this course are: aseptic technique, positioning, skin preparation, care of specimens, use of thermoregulatory devices, vital signs, handling of blood replacement components, urinary catheterization and emergency procedures.

### **4635 Basic Case Preparation**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: 4633 and concurrent enrollment in 4636.

This course builds on the previously acquired knowledge of human anatomy and physiology, introduction to surgical technology, basic instrumentation, surgical equipment and supplies; sutures and stapling devices will be discussed and demonstrated. The student will learn the proper care, handling, use and assembly of instruments and equipment. Also discussed during this course will be draping techniques and maintenance of the sterile field.

### **4636 Basic Case Preparation Laboratory**

1 credit hour, 2 contact hours (0 hours lecture and 2 hours lab). Prerequisite: 4633 and concurrent enrollment in 4635.

This laboratory course is designed to build on the student's knowledge of basic surgical technology skills, professionalism, and ethics. The role of the surgical technologist is developed and applied in laboratory procedures.

### **4637 Surgical Procedures I**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: 4633 and concurrent enrollment in 4638.

This course is designed to acquaint the student with the operating room procedures and techniques necessary to function as an assistant in the Operating Room. Discussed during this course will be the relevant anatomy, indications for surgery, special equipment and supplies, purpose and expected outcome and possible complications for procedures in the following surgical specialties: General and Gastrointestinal, Obstetric and Gynecologic, and Orthopedic. The student will have clinical experiences in the above areas, functioning as a second scrub, first scrub or assistant circulator under the supervision of a certified surgical technologist or registered nurse.

### **4638 Surgical Procedures I: Clinical**

3 credit hours, 15 contact hours (0 hours lecture, 0 hours lab, and 15 hours clinical). Prerequisite: 4633 and concurrent enrollment in 4637.

This course is designed to build on the student's knowledge of basic surgical techniques, professionalism, and ethics. The role of the surgical technologist is developed and applied in basic surgical procedures. The principles of asepsis and patient care concepts of positioning, prepping, draping, and procedural techniques are applied directly to the investigation of General, Gastrointestinal, Obstetrics, Gynecological and Orthopedical surgical procedures. Maintaining the integrity, safety, and efficiency of the sterile and non-sterile areas throughout surgical procedures will be emphasized.

### **4639 Surgical Procedures II**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: 4638 and concurrent enrollment in 4640.

This course is an extension of Surgical Procedures I. Discussed during this course will be the relevant anatomy, indications for surgery, special equipment and supplies, purpose and expected outcome and possible complications for procedures in the following surgical specialties: ophthalmic, ear/nose/throat, dental/oral/maxillofacial, plastic and reconstructive and neurological surgery.

### **4640 Surgical Procedures II: Clinical**

3 credit hours, 15 contact hours (0 hours lecture, 0 hours lab, and 15 hours clinical). Prerequisite: 4638 and concurrent enrollment in 4639.

This course is designed to build on the student's knowledge of surgical technology with emphasis on clinical surgical applications in ophthalmic, ear/nose/throat, dental/oral/maxillofacial, plastic and reconstructive and neurological surgical procedures. Emphasis is on further development of surgical skills.

### **4641 Surgical Procedures III**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: 4639 and concurrent enrollment in 4642.

This course is an extension of Surgical Procedures II. Discussed during this course will be the relevant anatomy, indications of surgery, special equipment and supplies, purpose and expected outcome and possible complications for procedures in the following surgical specialties: thoracic, cardiovascular, peripheral vascular, and urologic. The student will have clinical experience in the above areas, functioning as a second scrub, first scrub, or assist circulator under the supervision of a certified surgical technologist or registered nurse.

### **4642 Surgical Procedures III: Clinical**

3 credit hours, 15 contact hours (0 hours lecture, 0 hours lab, and 15 hours clinical). Prerequisite: 4639 and concurrent enrollment in 4641.

This course is designed to build on the student's knowledge of surgical technology with emphasis on clinical surgical applications in thoracic, cardiovascular, peripheral vascular, and urologic surgical procedures. Emphasis is on further development of surgical skills.

### **4643 Pediatric Surgery**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: 4642 and concurrent enrollment in 4644.

This course is designed to acquaint the student with pediatric patients and a variety of surgical procedures unique to the pediatric patients.

### **4644 Pediatric Surgery: Clinical**

1 credit hour, 5 contact hours (0 hours lecture, 0 hours lab, and 5 hours clinical). Prerequisite: 4642 and concurrent enrollment in 4644.

This course is designed to build on the student's knowledge of surgical technology with emphasis on clinical surgical applications. Clinical experiences will emphasize adapting pediatric concepts in the surgical setting. Students will be given the opportunity to scrub in these pediatric specialty surgeries: General Surgery, Urology, Orthopedic, Neurosurgery, Thoracic surgery, Cardiovascular surgery, Ophthalmology, Plastic surgery, and ENT surgery.

#### **4645 Advanced Surgical Technologist Practicum**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: 4644 and concurrent enrollment in 4646.

This course focuses on continuing surgical theory. It provides study of special problems that correlate with the individual needs and interests of the student during clinical practice. Clinical supervised practice is an integral part of this course.

#### **4646 Advanced Surgical Technologist Practicum: Clinical**

3 credit hours, 15 contact hours (0 hours lecture, 0 hours lab, and 15 hours clinical). Prerequisite: 4644 and concurrent enrollment in 4645.

This course is designed to build on the student's knowledge of surgical technology with emphasis on clinical surgical applications. The student is expected to work with one preceptor during this course, and are expected to perform in the clinical practice with minimal assistance.

#### **4647 Professional Trends and Issues in Surgical Technology**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: 4646.

This course is designed to prepare the student for the workplace. Topics discussed will be: factors that affect the student's personal life, professional relations and organizations, preparation for the national certification examination, type of health care delivery agencies, accrediting agencies and job seeking skills.

#### **4649 Surgical Technology Seminar**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: 4647.

This course is designed to provide the correlation between previously learned concepts and clinical application. It is designed to aid in transition from surgical technology student to entry level Surgical Technologist. Topics discussed in this course include General, OB/GYN, Vascular, GU, Cardiothoracic, Plastic and Ophthalmology surgeries. Requirements for ethical and legal practice as defined by the National Association of Surgical Technologists will be reviewed and discussed.

### **4651 Specialty Surgical Practice**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: 4649 and concurrent enrollment in 4652.

This course is a continuation of Professional Trends and Issues in Surgical Technology with additional surgical specialties presented. For example: Transplant surgery, trauma, ophthalmology, cardiac surgery, orthopedic, plastic, and neurology surgery are covered. The student will select two specialty areas and specialize in those areas. The student will be expected to transfer and build on previous content and experiences.

### **4652 Specialty Surgical Practice: Clinical**

3 credit hours, 15 contact hours (0 lecture hours, 0 hours lab, and 15 clinical hours). Prerequisite: 4647 and concurrent enrollment in 4651.

This course is designed to build on the student's knowledge of surgical technology with emphasis on two specialty clinical surgical applications. The student is expected to select two specialty areas and focus on those surgical areas.

### **4801 Health Alterations for Practical Nursing Students**

11 credit hours, 21 contact hours (6 hours lecture, 3 hours lab and 12 hours clinical). Prerequisite: C grade (2.00) or better in 4203 and 4220.

This course is designed to provide the PN student with concepts, skills, communication techniques necessary for providing caring, therapeutic care to culturally diverse clients of all age groups. Emphasis will be placed on clients experiencing common recurring health alterations related to circulation, oxygenation, gastrointestinal, musculoskeletal, neurological, renal and endocrine functioning as well as alterations in mental health. While interacting with clients in acute and long term care facilities, the student will recognize self-care deficits, demonstrate caring behaviors, administer safe care, be accountable, and adhere to the legal and ethical standards of practical nursing practice.

### **4804 Pharmacology II for Practical Nursing Students**

3 credit hours, 5 contact hours (2 hours lecture and 3 hours lab) [which includes 20 hours of clinical lab]. Prerequisite: Successful matriculation through the COTC Practical Nursing Plan of Study and concurrent enrollment in 4801. C grade (2.00) or better in 4203 and 4220.

The student continues the learning begun in 4220 about the role of the nurse in drug therapy for clients of all ages. An emphasis on the role of the Licensed Practical Nurse (LPN) in medication administration will be emphasized. Calculation of dosage, measurements, and abbreviations will continue to be an important component. Selected classifications of drugs and utilization of the nursing process in identifying expected actions,

common side effects, normal dosage and routes of administration. Prototype examples will be used in each classification. Relevant assessments and teaching of clients will be included. Upon satisfactory completion of this course the student should be able to utilize the nursing process to administer medications to a client in a safe, effective, and caring manner. In addition, organizational skills required to administer medications to a group of patients will be developed.

### **4809 Trends and Issues for the Practical Nurse**

1 credit hour, 1 contact hour (1 hour lecture and 0 hours lab). Prerequisite: Concurrent enrollment in 4801.

The purpose of this course is to introduce the PN nursing student to current concepts, trends, and issues in patient care management. as: career development, trends in patient care management Societal influences that affect the development of PN practice and delineate the PN=s scope of practice will be the major focus of this course. The image of the PN in today=s society will be explored, as will the media=s influence on the health care consumer=s opinion of nursing in today=s society. Professional socialization of the PN student will occur through emphasis on such topics, role transition to the workplace, licensure issues in the State of Ohio, management of ancillary personnel, nurse=s rights at work, legal and ethical implications of patient care delivery, approaches to patient care delivery, channels of communication, quality improvement in health care, the organizational process, the role of the PN leader, critical thinking strategies, and how to make the work environment work for you. The PN student builds on previously learned concepts and develops additional learning within the Licensed Practical Nurse scope of practice.

### **4890 Independent Study in Practical Nursing Theory and Application**

2 credit hours, 8 contact hours (1 hour lecture, 0 hours lab, and 7 hours directed practice). Prerequisite: Enrollment in the Practical Nursing Program and permission of the Academic Director.

This course provides the student with the opportunity to study topics within the practical nursing technology. Students will utilize biopsychosocial, spiritual, and nursing concepts, skill s and communications techniques as a framework for review of care for culturally diverse clients of all age groups experiencing the need for health care. Emphasis will be placed on the recognition of self-care deficits, caring behaviors, administration of safe nursing care, accountability and responsibility. This course will count neither for elective credit nor toward meeting minimum credit hours for graduation and/or certificate completion.

### **4899 NCLEX PN Preparation**

2 credit hours, 16 contact hours (Miscellaneous Applications Course--1 credit hour awarded per 7 contact hours of work per week). Prerequisite: Successful completion of the Practical Nursing Technology program. S/U Graded Course.

Students will utilize biopsychosocial, spiritual, and nursing concepts, skills and communications techniques as a framework for review of care for culturally diverse clients of all age groups experiencing the need for health care. Emphasis will be placed on the recognition of self-care deficits, caring behaviors, administration of safe nursing care, accountability and responsibility. This course does not apply credit toward graduation and is graded on a Satisfactory/Unsatisfactory basis.

### **4993 Independent Studies in Pathophysiology**

3 credit hours, 4 contact hours (2 hours lecture and 2 hours lab). Prerequisite: C grade (2.00) or better in 4016 or its equivalent. S/U Graded Course.

Study of pathological imbalances including cellular adaptation and injury, fluid compartment exchanges, with edema and dehydration, electrolyte functions, control, and imbalances, acidosis and alkalosis, nervous system injuries and responses, sensory imbalances, skeletal system injury and repair, soft tissue injury and repair, and muscle injury and dysfunction. This course is graded Satisfactory/Unsatisfactory.

### **4995 Independent Study: Application of Pathophysiology**

1 credit hour, 1 contact hour (1 hour lecture and 0 hours lab). Prerequisite: Enrollment in Radiographic Technology or Diagnostic Medical Sonography Technology and permission of the instructor.

This course is designed to introduce the Allied Health student to the principles of human pathophysiology. The signs and symptoms, diagnosis and treatment of selected pathological processes are discussed in detail.

### **4998 Independent Studies in Human Anatomy and Physiology**

1 credit hour, 1 contact hour (1 hour lecture and 0 hours lab). Prerequisite: high school biology or equivalent and high school chemistry or equivalent.

Introduction to the study of the anatomy and physiology of the human, including standard terminology, chemistry review, cells and tissues, with the structure and function of the integumentary system, skeletal system, muscular system, nervous system, excretory system, and reproductive system on an independent study basis. Laboratory includes the study of human cadavers.

### **49XX Special Topics in Allied Health**

1-5 credit hours, contact hours to be determined. Prerequisite: Approval of Academic Director.

This course will provide the student an opportunity to work on special topics within the field

of Allied Health under the direct supervision of a faculty member. A faculty member and student must obtain approval from the Academic Director prior to initiating this course. Enrollment in this course must be approved by the Academic Director.