

## Description of Courses

Courses taught by Conemaugh Memorial Medical Center School of Radiologic Technology:

### **RAD 100 Intro to Radiologic Technology/Medical Terminology/Positioning I • 3 credits**

The student is introduced to the field of radiologic technology and becomes aware of its importance as a part of the health care team. The student's medical vocabulary will increase so that they may implement what they have learned in the professional setting. This course will teach the student the positioning skills necessary to demonstrate the chest, abdomen, upper and lower extremities radiographically. Pertinent anatomy will be reviewed and positioning theories discussed. These theories are applied in a laboratory setting and then in a clinical setting.

### **RAD 101 Medical Ethics/Patient Care • 3 credits**

This course is designed to provide the student with a basic understanding of the physical and psychosocial aspects of patient care. Ethical and legal issues facing future technologists are addressed. Emergency procedures, assessment of vital signs and the proper care of drainage tubes are included. Medical and surgical aseptic techniques, as well as isolation precautions are presented. This course will prepare students to work effectively as radiography health care role models by demonstrating professional attitudes and behavior.

### **RAD 103 Radiographic Positioning & Procedures II 3 credits**

This course is a continuation of Radiographic Positioning and Procedures I. The major emphasis of Radiographic Positioning and Procedures II is thorax, vertebral column and skull positioning; with the addition of completion of lower extremity from IRT course. Pertinent anatomy is reviewed and positioning theories discussed. These theories are applied in a laboratory and clinical setting.

### **RAD 104 Radiation Protection/Radiobiology • 3 credits**

This course teaches the safe practice and procedures in the use of ionizing Radiation. The concepts and principles of radiation protection and radiobiology will be included. This course also reviews cellular anatomy and informs the students of two theories of interaction between ionizing radiation and molecular bodies. It discusses the effects of ionizing radiation on the human body. It covers in depth the short and long term effects of exposure and provides an opportunity for the student to distinguish between threshold and non-threshold graphs.

### **RAD 106 Radiographic Technique I • 3 credits**

The purpose of this course is to give the student a clear understanding of how to formulate techniques of radiographic exposure. It does so, in a step-by-step, logical sequence. First the student must learn about the x-ray imaging system, the x-ray tube, radiographic film, processing techniques and intensifying screens.

### **RAD 107 Radiographic Positioning & Procedures III (VP) • 3 credits**

This course is a continuation of Radiographic Positioning II. The major emphasis of Radiographic Positioning III is completion of skull positioning, gastrointestinal imaging, and urinary and reproductive systems imaging. This course is also designed to familiarize the students with the following contrast studies: Bronchograms, Myelography, Arthrography, Sialography, Venograms and Lymphangiograms. Pertinent anatomy is reviewed and positioning theories discussed. These theories are applied in a laboratory setting and then in a clinical setting. Also included in this course is a section for Phlebotomy/Venipuncture which provides the radiologic technology student with the basic theoretical knowledge of Venipuncture IV techniques. Various Contrast agents, their administration and intravenous medication specific to Radiology will be discussed.

### **RAD 201 Physics II • 3 credits**

This course discussed in detail the production of x-rays and the operation of the thermionic diode tube. The student is instructed on the multiple interactions between x-rays and matter. X-ray emission curves are discussed and mathematical computations are demonstrated concerning photon frequency and minimum wavelength.

### **RAD 202 Human Pathology • 3 credits**

This course introduces basic terminology related to disease. It covers the most commonly occurring diseases of each system. It instructs the student on origin, symptoms, diagnosis and prognosis of each disorder. Radiographic demonstration occurs when possible. Common medications used to treat the disorders are discussed.

**RAD 204 Radiographic Techniques II/EIS • 2 credits**

This course follows the introductory RT course and describes beam-restricting devices, grids and radiographic exposure factors. It also covers principles of conventional fluoroscopy, image intensification, video camera tubes, TV chains and imaging devices. It includes discussions on cinefluorography, tomography and mobile radiography. It introduces the student to digital imaging, computer tomography, computer radiography, nuclear medicine, positron emission tomography (PET), single photon emission computer tomography (SPECT), ultrasonography, cardiac cauterization, DEXA and magnetic resonance imaging.

**RAD 205 Quality Assurance/Quality Control • 2 credits**

This course is designed to introduce the student to the various Quality Assurance and Quality Control methods utilized in radiology departments today. It is also designed to give the students a full understanding of the Quality system as a whole and how it is useful in today's working radiology departments.

**RAD 207 Registry Professional Review • 2 credits**

This course is designed to provide focus and direction for the student's review, thus helping them to do the very best on their certification exam. The review course is divided into 5 sections: (1) Patient Care, (2) Radiographic Exposure, (3) Radiation Protection, (4) Equipment Operation and Maintenance and (5) Image Production and Evaluation. This comprehensive review course consists of practice tests that are designed to duplicate the experience of taking the certification exam. The test is then reviewed which helps to determine the student's area of strengths and weaknesses. This will enable the student to be prepared for the certification exam. Students will be able to design a study schedule to help them prepare for the exam. Test-taking strategies will also be reviewed.

The Clinical performance grade is based on the student meeting established standards of achievement, Clinical Evaluations, Clinical Competencies, Positioning Grade, Comprehensive Exams, attendance and program requirements for each semester.

RAD	102 Clinical Education I	• 3 credits
RAD	105 Clinical Education II	• 3 credits
RAD	108 Clinical Education III	• 4 credits
RAD	203 Clinical Education IV	• 4 credits
RAD	206 Clinical Education V	• 4 credits
RAD	208 Clinical Education VI	• 5 credits

**Courses Taught by Pennsylvania Highlands Community College:****BIO 260 Human Anatomy & Physiology (pre-requisite) 4 college credits (Lab included)**

This course introduces the student to the basic structure and functioning of the human body. It is the first half of a yearlong introduction to A&P. Course topics include the organization of the body at the molecular, cellular and tissue levels, the structure and function of cells, tissues, the integumentary, skeletal muscular and nervous systems.

**BIO 262 Human Anatomy & Physiology Advanced (pre-requisite) • 4 college credits (Lab included)**

This course introduces the student to the structure and functioning of the human body. It is the second half of a year long introduction to A & P. Course topics will include the organization of the body systems at the molecular, cellular and tissue levels. The structure and function of the senses, cardiovascular, lymphatic, respiratory, digestive, reproductive, endocrine, urinary and immune systems will be studied.

**FYE 100 – First Year Experience • 1 college credit**

This course helps students make the transition to college courses. Methods of inquiry, college reading and study skills, time management and active learning concepts are taught. The objective is to provide a set of analytical skills that ensure success in a competency-based program.

**CIT 100 Microcomputer Applications • 3 college credits**

This hands on courses introduces the student to the more popular microcomputer software packages available including Windows, word processing, spreadsheets and presentations. This course provides students with a working knowledge of these software packages to accomplish the more common tasks. The Microsoft Office suite, MS word, MS Excel and MS Power Point is used.

**ENG 110 English Composition I • 3 college credits**

This course emphasizes the techniques of writing expository essays with stress upon careful thinking, word choice, sentence structure, thesis statement, and methods of organization. Students practice the writing of clear, coherent, and unified paragraphs and essays. Editing skills and the use of correct grammar and mechanics are also emphasized. Students are taught research and documentation skills and are required to write an argumentative research paper. This is the standard college English composition course.

**ENG 220 – Business Letter and Report Writing****3 college credits**

The strategies and techniques of writing letters, memos and reports are emphasized for situations that arise in business. Business communication skills are developed and refined through assignments that include the writing of positive letters, negative letters and other business messages. For greater development of these skills, a business report and an oral report are assigned to apply principles for writing analytical or informational reports.

**PSY 130 – Human Development Across the Life Span****3 college credits**

This course examines the factors that influence the total development of the individual and the psychological and sociological through that affects how we interpret developmental ages and stages from birth to death. The individual is explored with respect to his or her ability to participate and shape life choices. The student has a unique opportunity to concentrate on an area of interest such as developmental disabilities, juvenile justice, and sociology of growing old.

**MAT 131 – Intermediate Algebra • 3 college credits**

This course is designed to prepare students for higher-level mathematics through a mastery of algebraic concepts. Topics include factoring polynomials, variable expressions, equalities and inequalities, literal equation, absolute value, graphing systems of equations, matricides and functions.

**PHY 100 Physics • 3 college credits**

This course introduces students to phenomena concepts and principles of physics. Concepts are taught in context of how they relate to energy systems: mechanical, fluid, electrical and thermal. The course is for students why may not have prior physics instructions.

**PHY 101 Physics Laboratory • 1 college credit**

This course illustrates the topics introduced in lecture through hands-on laboratory experiments. Experiments in laboratory are on force, work, acceleration, energy, waves, reflection and refraction.

**LIF 111 – Health and Wellness • 3 college credits**

Healthy lifestyle behaviors contribute to wellness throughout the life cycle. This is a health science course that explores variables related to achieving a longer and healthier life. This course discusses how informed personal choices in regards to behavior, exercise and food intake can promote health and wellness. This course looks at

personal behavior choices in regard to various health disorders, such as chronic disease, sexually transmitted disease, eating disorders, alcohol and drug abuse, allergies and food intolerances. The goal is for students to use this new knowledge to make informed choices in everyday life.

**COM 120 Organizational Communications****3 college credits**

Communication within an organization is a requirement for success and growth in today's competitive business environment. Classic and contemporary theoretical approaches to organizational communication are examined, as well as communication issues in the work place related to cultural, social and leadership issues. Students study formal flow of information as well as the grapevine channels of communication. Students review information technologies, such as the Internet, The World Wide Web and teleconferencing.

**PSY 100 General Psychology • 3 college credits**

This course is a general introduction to the scientific study of the brain, behavior, and mental processes of humans and animals, with emphasis on the goals of psychology, to describe, explain, predict and control behavior. Students examine the substance of psychology such as biopsychology, sensation and perception, learning, memory, cognitive processes, affective behaviors and mental illness through an examination of the theories, principles, and methods of research used in the field. Examples and applications enable the student to acquire the elements of critical thinking as adapted to the research environment. Students produce an APA formatted research paper. This course applied the fundamentals principles of psychology as a natural science. Students explore current research through reading original empirical research and write an APA formatted analytic research paper. Classroom, web-supported and web-based delivery.

**ACE 200 Access Portfolio • 1 college credit**

This course prepares students for competing effectively in the highly competitive real life employment market place. This course focuses on career portfolio development/preparation, resume and cover letter preparation, hands-on experience in effectively using career exploratory reference material, job search techniques, pre and post interviewing techniques, including mock interview and critique, test taking tips and appropriate professional apparel.