INTER AMERICAN UNIVERSITY OF PUERTO RICO
SAN GERMÁN CAMPUS
SCHOOL OF NURSING AND HEALTH SCIENCES DEPARTMENT

ASSOCIATE DEGREE IN SCIENCES IN RADIOLOGIC TECHNOLOGY PROGRAM

STUDENT'S PROGRAM HANDBOOK

2020-2021

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INTER AMERCIAN UNIVERSITY OF PUERTO RICO
SAN GERMÁN CAMPUS
School of Nursing and Health Sciences Department
Radiologic Technology Program

August ____, 2020

Dear Student:

WELCOME TO THE RADIOLOGIC TECHNOLOGY PROFESSION

Congratulations on choosing an exciting and rewarding profession. Our faculty warmly welcomes you to our profession and rewards our role as your guide to an excellent practice.

Soon you will entering in a variety of educational experiences designed to help you achieve your academic goal. There are many challenges but take a deep breath and dig in. All of us are counting on you. We are here to prepare you intellectually and technically and to provide you with valuable tools you need to design a safe and effective practice.

One of these tools is the Radiologic Technology Program's Student Manual. In this manual, we have tried to present general information about the Program and the regulations that apply to the clinical practice. Keep it with you so you can use it when needed.

Thanks for choosing us as your first choice. Our trust is on you.

Truly yours,

Prof. Sara Torres Padilla, Ed.D, RT(R)
Program Director

INTER AMERCIAN UNIVERSITY OF PUERTO RICO
SAN GERMÁN CAMPUS
School of Nursing and Health Sciences Department
Radiologic Technology Program

MODEL

MANUAL AGREEMENT

I _____certify that I have received and been instructed on the contents of the **Program's Student Manual 2020-21** that includes general information of the Program, clinical practice program regulations, and radiation protection policies. I understand and accept these policies as stated in the Student Manual and will abide by all rules and regulations of the Inter American University of Puerto Rico, the Radiologic Technology Program and affiliated clinical education centers. I understand that, if I violate these policies and regulations, I will be disciplined according to stated disciplinary actions.

I also understand the importance of confidentially in the medical profession, Health Insurance Portability Act (HIPAA), and will not disclose any information regarding a patient, fellow student, or hospital personnel without proper authorization. Failure to abide by HIPAA mandates may result in disciplinary procedures.

_____ _____
Student's Signature Student Number

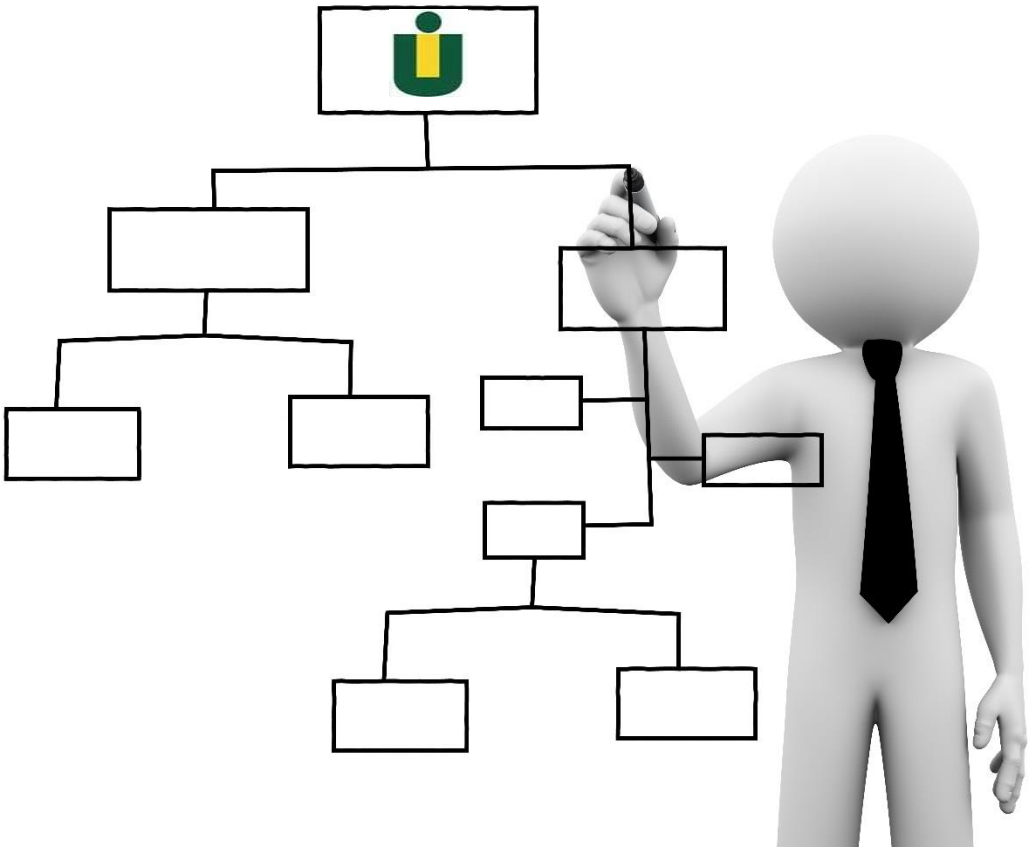
_____ _____
Faculty Signature Date

stp
C: Student Record

PRINCIPAL PROGRAM OFFICIALS

President of the IAU System	Manuel J. Fernós, LL.M.
Chancellor	Agnes Mojica-Comas, M.A.
Acting Dean of Studies	Vilma S. Martinez, M.S.
School Director	Hector Mercado, B.S.N., M.S.N., MD
Program Director	Sara L. Torres - Padilla, Ed.D., R.T. (R)
Faculty	
Clinical Coordinator	Prof. José H. Garcés- Llantín, Ed.D., R.T. (L)
Program's Safety Radiation Officer	Prof. Lourdes Maldonado- Mercado, B.S.
Part-Time Faculty	Prof. Omayra Rullán, RT (L), B.S. Prof. Yanaira Jiménez, MD
Clinical Instructors	Jackeline Rodríguez, Hospital La Concepción, San Germán José Soto, Hospital Bella Vista, Mayagüez Yesenia Menéndez, Hospital Damas, Ponce Zoralys Rosado, Hospital Buen Samaritano, Aguadilla Jorge Acosta Mayagüez Medical Center, Mayagüez Luz Velázquez, Hospital Metropolitano, San Germán Héctor González, Hospital Perea, Mayagüez
Student's Council President	Ms. Fanny Feliciano

ORGANIZATIONAL CHARTS



SAN GERMÁN INSTITUTIONAL CHART

INTER AMERICAN UNIVERSITY OF PUERTO RICO
SAN GERMÁN CAMPUS
SCHOOL OF NURSING AND HEALTH SCIENCES DEPARTMENT

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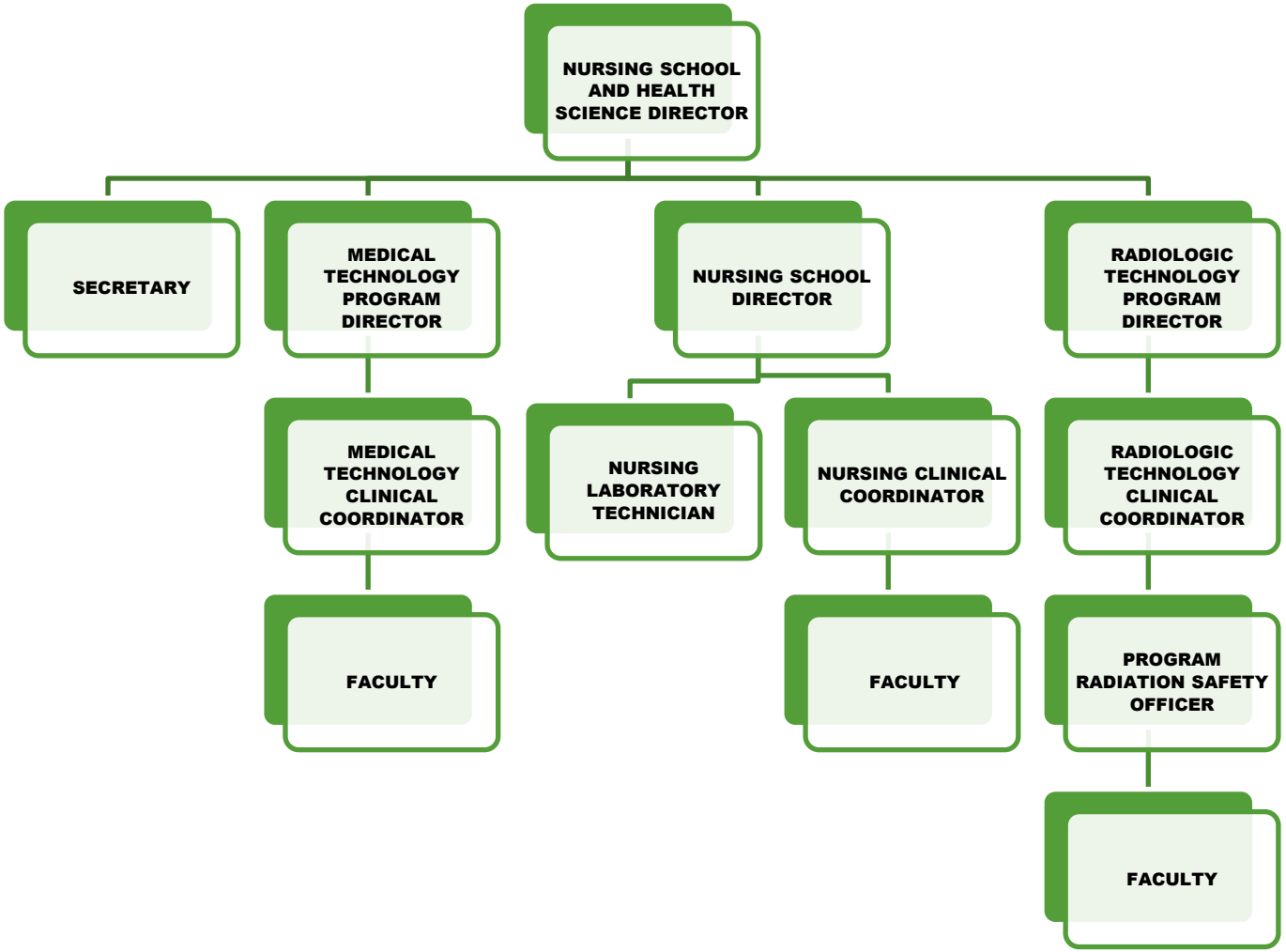
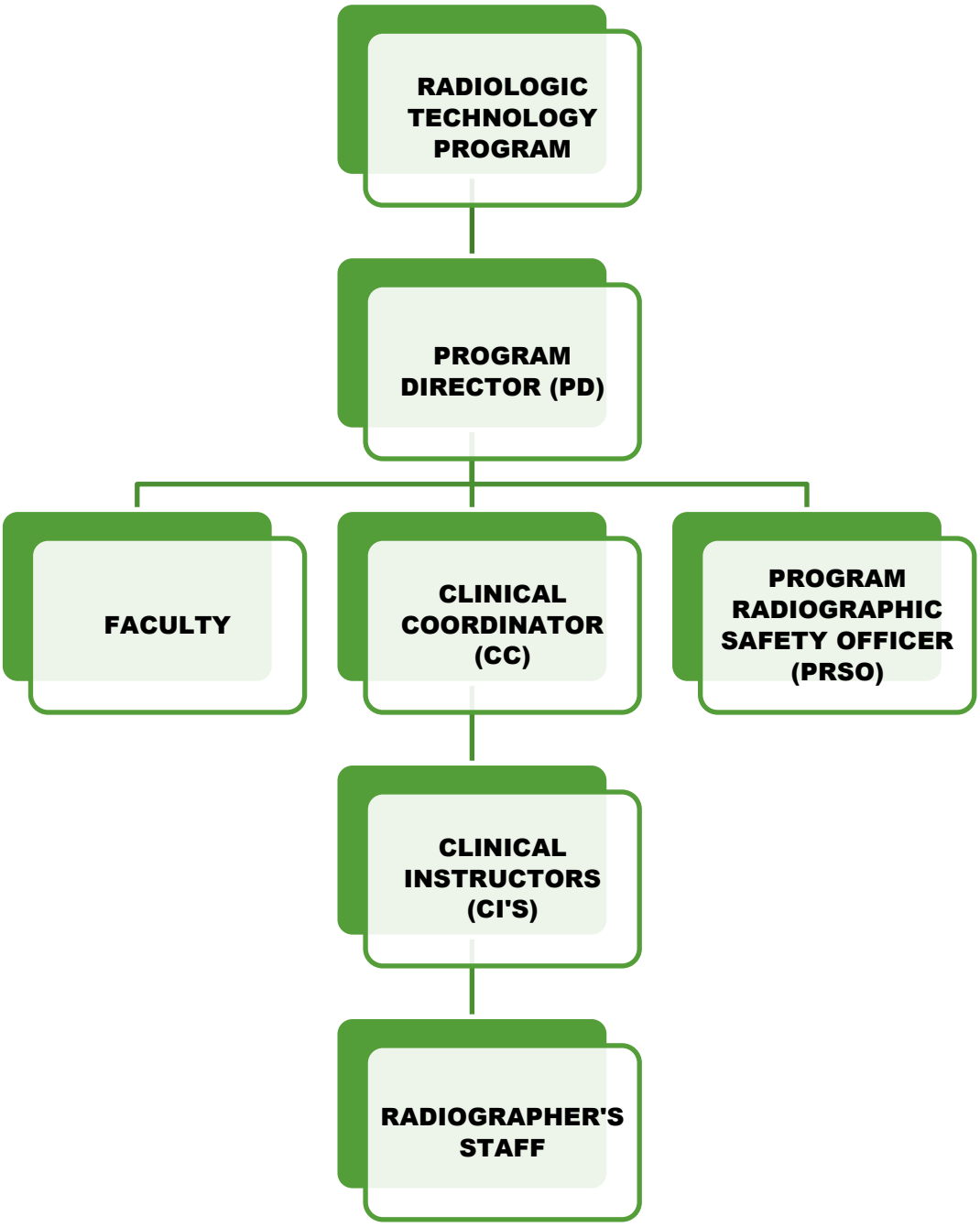


RADIOLOGIC TECHNOLOGY PROGRAM

ORGANIGRAM

RADIOLOGIC TECHNOLOGY PROGRAM ORGANIGRAM



GENERAL INFORMATION

Inter American University of Puerto Rico is a private institution with a Christian heritage and an ecumenical tradition. It was originally founded in 1912 as the Polytechnic Institute of Puerto Rico by the Reverend John W. Harris, and it offered elementary and secondary education on the land occupied today by the San Germán Campus. The first college level courses were started back in 1921; and in 1927, the first group of students graduated with Bachelor's Degrees.

In 1944, the Institution was accredited by The Middle States Association of Colleges and Schools. It was the first four-year liberal arts college to be accredited outside the continental limits of the United States. The programs of the University are authorized by the Council of Higher Education of the Commonwealth of Puerto Rico and by the Commonwealth's Department of Education, which certifies teachers for the public school system of Puerto Rico. The University is also approved to provide educational services to veterans intending to pursue studies under the norms of the Veteran's Administration.

San Germán Campus is distinguished by its human warmth, the interaction between the components of the university community, the development of student leadership, a bilingual academic offer, modern dormitory facilities, and a tradition of service to students from Puerto Rico and other areas of the world.

The Associate Degree in Applied Sciences in Radiologic Technology Program of the Inter American University of Puerto Rico at San Germán Campus was created to prepare radiographers, the health professionals responsible for performing radiographic procedures through the use of radiological diagnostic equipment. The Radiographer is trained to provide patient care under the supervision of a Radiologist.

The Joint Review Committee on Education in Radiologic Technology (JRCERT) defines the radiographer as a highly competent professional qualified by its education to make diagnostic image and to assist qualified doctors in radiographic procedures.

The Program is authorized by the Council on Higher Education of the Commonwealth of Puerto Rico (CES), accredited by the Middle Status Association of Colleges and Schools (MSA), and by the Joint Review Committee on Education in Radiologic Technology (JRCERT). Requirements are offered in a two-and-half year program (5 semesters) of academic and practical training. Students must complete eighty-four (84) credits, which include basic skills (language, mathematics, computer literacy), and scientific, technological and humanistic knowledge.

The students perform their clinical practice in the following facilities affiliated to the Program:

- Buen Samaritano Community Hospital
  PO BOX 4055
  Aguadilla, PR 00605
  Tel: 787- 891-3155 / 3733
- Bella Vista Hospital
  PO BOX 1750
  Mayagüez, PR. 00680
  Tel: 787- 834-6000
- La Concepción Hospital
  PO BOX 285
  San Germán, P.R. 00683
  Tel: 787- 892-1860
- Damas Hospital, Inc.
  2213 Ponce By Pass
  Ponce, P.R. 00731-7779
  Tel: 787- 840-8686
- Mayagüez Medical Center
  PO BOX 1838
  Mayagüez, PR 00681
  Tel: 787- 834-6070
- Hospital Perea
  15 Dr. Basora St.
  Mayagüez , PR, 00681
- Hospital Metropolitano
  Calle Javilla #8
  Al Costado Parque De Bombas
  San German, Pr, 00683

Each student will participate in the clinical experiences provided by the practice setting following a rotation plan. The educational program complies with the Act #76 of April 12, 2006, as amended, which regulates the radiologic technology practice in Puerto Rico.

MISSION, GOALS AND STUDENT LEARNING OUTCOMES OF THE PROGRAM

The Associate Degree in Applied Sciences in Radiological Technology (AAS) seeks the training and preparation of a health professional responsible for administering doses of ionizing radiation for diagnostic, treatment or research purposes. The development of a radiological technologist with the highest level of clinical competence and responsibility regarding the acquisition of radiographic image, quality control and patient care in a radiological center is promoted. It promotes the development of skills to solve problems and think critically. Promotes oral and written communication skills according to the needs of different types of patients. Integrates and applies the principles of radiological and occupational safety in the Radiology department.

The mission of the Associate Degree in Applied Science Program in Radiological Technology has its roots in the mission of Inter American University of Puerto Rico.

This mission is achieved through the following goals:

1. To develop an academic program that responds to student needs and those of the society the Program serves.
2. To develop a curriculum in harmony with the practice standards established by the regulating agencies of the discipline.
3. To provide students with the knowledge and necessary educational experiences that will permit them to pass the revalidation examination.
4. To prepare professionals to be members of an interdisciplinary health team that will carry out its functions in a safe, effective and competent manner.
5. To promote learning as a continuous process so that these professionals keep updated in their field of specialty once they enter the world of work.

JRCERT Program Assessment Goals and Student Learning Outcomes:

Goal 1: Students will be clinically competent.
Student Learning Outcomes:

1.1 Students will apply positioning skills for Radiographic Procedures.
1.2 Students will operate radiographic equipment.
1.3 Students will apply Patient Care in Radiologic Sciences.
1.4 Students will practice radiation protection.

Goal 2: Students will communicate effectively orally and writing.
Student Learning Outcomes:

2.1 Students will use effective oral communication skills with clinical staff and patients in the clinical setting.
2.2 Students will practice written communication skills.

Goal 3: Students will use critical thinking and problem solving skills.
Student Learning Outcomes:

3.1 Students will adapt appropriate exposure factors for non-routine examinations.
3.2 Students will adapt positioning for trauma patients.

Goal 4: Students will exhibit professional values, attitudes, behaviors, and ethics.
Student Learning Outcomes:

4.1 Students will determine the importance of continued professional development.
4.2 Students will apply ethics and moral behavior, and ethical issues in health care.
4.3 Students will exhibit professional behaviors in the clinical setting.

Program Effectiveness Measures
State Board examination and ARRT pass rate, employment rate, completion rate, student satisfaction, employer satisfaction.

Student Learning Outcomes:

1. Graduates will pass the state board examination on the 1st attempt.
2. Graduates will pass the ARRT national certification on the 1st attempt.
3. Graduates who are seeking employment will obtain a position within 6 months of graduation.
4. Students admitted to the program will successfully complete the program within the 22 months sequence.
5. Students will be satisfied with their education.
6. Employers will be satisfied with the graduate's performance.

Admission Requirements

Students aspiring to the Associate Degree in Applied Science in Radiological Technology must meet the following specific requirements for admission to the Program:

1. Be admitted to Inter-American University of Puerto Rico, in a campus authorized to offer the Program.
2. Submit a completed admission application on or before the date stipulated by the Program.
3. Present an official and updated transcript of recent studies.
4. Have a general grade point average of at least 2.50.

Admission Procedure

1. The transcript of courses taken, and credits will be evaluated.
2. The absolute value of the general grade index (GPA) will be considered from 2.50 in a scale of 4.0.
3. Each course taken will be assigned a value in accordance with its credit value. The assigned value will be multiplied by the numerical value of the grade obtained (A = 4 points, B = 3 points, C = 2 points)
4. **<u>High School Students:</u>**

   The scores of the completed courses will be added (Biology, Chemistry, Physics and Introduction to Computers), the total is divided by the total of credits taken and this total is multiplied by the number of courses for a total of from 0 to 16 points. (Total points ÷ total of credits = _____ total x of taken courses (maximum 4) = _____)

a. Present evidence of the results of the PAA test. Points will be awarded in the sections of Mathematics and English based on the score obtained in each part, as described below:

- English: 440-540 = 2 points; 541-640 = 3 points; 641 and higher = 4 points
- Mathematics: 440-520 = 2 points; 521-600 = 3 points; 601 and higher = 4 points

University Students:

The scores of the completed courses or their equivalent will be added (Basic Concepts of Biology, Human Anatomy and Physiology, Intermediate Algebra, Psychology, Introduction to Computers and English) and divided by the total of credits taken and multiplied by the total number of courses (maximum of 6) up to a total of 24 points (Total points ÷ total credits =____ total x of courses taken (maximum of 6) = ____)

5. One point (1) will be granted for attendance at the Program orientation.
6. One point (1) will be granted if the applicant has experience in health-related professions.
7. A two-point (2) bonus will be granted if it is second-time application.

The total of points will be added for the final maximum score of 30 points. The applicants will be ordered in descending order from the highest to the lowest score and those with the highest scores will be selected. The maximum number of students per year will be determined based on the facilities and resources available to take care of them.

8. The candidates will be informed of the decision of the Admissions Committee.

After admission, students must present:

- Two (2) photos 2 x 2
- A health certificate
- Evidence of vaccination against Hepatitis B, Chickenpox and Influenza
- A certificate of no criminal record
- Up-to-date evidence of CPR.
- Negative Certificate of No Sex Offender.

- Particle Aspiration Test (N95).
- HIPAA Law Certificate.
- Negative doping (5 tests)

Retention Requirements

1. Meet the academic progress norms established in Inter American University's General Catalog.
2. Approve GEMA 1200 from the General Education Program and all major courses with a minimum grade of C.
3. The student will attend the clinical affiliation as programmed by the Program Office.
4. All students who do not satisfactorily approve one major course in a semester will be placed on a probationary period in the program. If a student fails, the same course during the probationary period, he will be dropped from the Program.
5. The student who is suspended for academic deficiency and/or punishable conduct may not be re- admitted to the Program. This applies to both the academic and clinical components.
6. Three (3) or more days of absence during the semester in a course of clinical practice, without a reasonable justification, will result in the student being dropped from the course.

Internal and External Transfer Requirements

1. Comply with all admission norms for transfer students established in the General Catalog and in that of the corresponding Campus.
2. The Director of the Program or the Director's authorized representative will evaluate the file and determine the equivalences.
3. Students, who fail, obtain UW in major courses or withdraw from the Program before completing the degree, have a maximum of two academic semesters to register in the current study program, in harmony with its capacity to receive more students. Those students, who do not take major courses during this period, must apply again for admission to the Program.
4. Direct internal or external transfers to courses RATE are not permitted. For this, an application for space or admission to the program must be made. Major courses will not be authorized in combined registration.

Graduation Requirements

1. Meet all the graduation norms and requirements for the Associate in Applied Science Degree established in the General Catalog.
2. To obtain the Associate of Applied Sciences Degree in Radiological Technology, the student must complete the degree with a minimum academic grade point index of 2.25 and the major with a minimum academic grade point index of 2.50.

The Program of the San Germán Campus is accredited by the national accrediting board, Joint Review Committee on Education in Radiologic Technology (JRCERT).

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN RADIOLOGICAL TECHNOLOGY

General Education Requirements	**24 credits**
Major Requirements	**51 credits**
Related Course Requirements	**3 credits**
Total:	**78**

General Education Requirements - **24 credits**

GESP	Literature and Communication	6
GEEN	English as a Second Language	6
GECF 1010	Introduction to the Christian Faith	3
GEIC 1010	Information and Computer Literacy	3
GEMA 1200	Fundamentals of Algebra	3
GEHS 2010	Historical Process of Contemporary Puerto Rico	3
	or	
GEEC 2000	Entrepreneurial Culture	3

Major Requirements - **51 credits**

RATE 1110	Patient Care	2
RATE 1125	Introduction to Radiological Technology	2
RATE 1130	Radiologic Protection	3
RATE 1141	Biology and Radiographic Anatomy I	3
RATE 1142	Biology and Radiographic Anatomy II	3
RATE 1221	Radiographic Procedure and Evaluation I	2

RATE 1230	Principles of Radiographic Exposure and Processing	3
RATE 2090	Pharmacology and Venipuncture	3
RATE 2210	Critique and Radiographic Quality Control	3
RATE 2222	Radiographic Procedures and Evaluations II	2
RATE 2223	Radiographic Procedures and Evaluations III	2
RATE 2231	Radiological Physics I	3
RATE 2232	Radiological Physics II	3
RATE 2240	Radiographic Pathology and Medical Terminology	3
RATE 2260	Radiobiology	2
RATE 2270	Diagnostic Image Modalities and Equipment	2
RATE 2911	Clinical Practice I	1
RATE 2912	Clinical Practice II	3
RATE 2913	Clinical Practice III	3
RATE 2917	Clinical Practice IV	3

Related Course Requirements - 3 credits

GEHS 3030	Human Formation, Society and Culture	3

INSTITUTIONAL POLICIES AND PROCEDURES OF RETURN OF FUNDS APPLICABLE TO STUDENTS WITH A TOTAL WITHDRAWAL

The Program follows the institutional policies and procedures for Institutional return of funds applicable to students with a total withdrawal as stated in the General Catalog 2020-2021, page 56.

OFFICIAL TOTAL WITHDRAWAL FROM THE UNIVERSITY

The Program follows the institutional policy for withdrawal as stated in the General Catalog 2020-2021, page 68.

DUE PROCESS PROCEDURES

Any student can feel unsatisfied about an academic or non-academic issue. When this occurs, he/she must follow the following steps and complete each step before proceeding to the next one. Punishable behavior that threatens safety, right of others, and the healthy environment that should exist in the University community or clinical settings will receive priority.

1. **Meet the professor or its delegate of the subject course in charge.** Faculty holds conferences with students in academic jeopardy, identifies deficiencies, and works with the student to determine a plan of action to overcome the deficiencies. Subsequent follow-up conferences are held to discern progress or lack of it toward the agreed plan. All these actions constitute the core of academic counseling. If no agreement is suitable for both parties, the next authority level will be followed.
2. **Meet with the Program Director or Delegate.** If unable to resolve the compliant with the professor or individual involved, the student must request a meeting with the Program Director or delegate within ten (10) business days after the first meeting. The Program Director or delegate will respond to the request by scheduling a meeting within ten (10) business days to discuss the issue and set a fair agreement with the student. All parties should make every effort to resolve the complaint at this level.
3. **Refer the complaint to the Health Science Department Director.** If the issue cannot be resolved at this level, The Department Chair will refer the student with all the evidence available to the subsequent channel, according to the nature of the issue, within five (5) business days. If the issue is of academic nature, it will be referred to the Dean of Studies or Academic Affairs. When the issue is of disciplinary nature it will be sent to the Dean of Student Affairs.

NOTE: These steps are done in the Health Science Department, Radiologic Technology Program. After these steps, the Department follows the University *"Punishable Behavior and Just Procedure"*, Chapter V, pages 32-44, of the General Student Regulations, Oct 2020.

POLICY OF ALLEGATIONS OF NON-COMPLIANCE WITH JRCERT STANDARDS

The Radiologic Technology Program of the Inter American University of Puerto Rico, San Germán Campus, is accredited by the Joint Review Committee on Education in Radiologic Technology, JRCERT, since November 2004. The Program voluntarily participates in programmatic accreditation. The accreditation process offers a means of providing public assurance that a program meets standards and of stimulating programmatic improvement.

The JRCERT standards for an Accredited Educational Program in Radiologic Sciences (STANDARDS) require a program to articulate its purpose and scope; demonstrate that it has adequate human, financial, and physical resources effectively organized for the accomplishment of its purposes; document its effectiveness in accomplish its purposes; and provide assurance that it can continue to meet accreditation standards. Using these standards, the goals of the accreditation process is to protect the student and the public, stimulate programmatic improvement, provide protective measures for federal funding or financial aid, and promote academic excellence.

A copy of the "Standards for an Accredited Education Program in Radiologic Sciences" is posted on the Program bulletin board. In the case that there is a question or complaint regarding accreditation matters, inquires may be directed to the:

Joint Review Committee on Education in Radiologic Sciences
20 N. Wacker Drive, Suite 2850
Chicago, IL 60606-3183
312-704-5300 (www.jrcert.org)

The Program in response to a complaint to the Joint Review Committee will follow the following procedure:

1. The Program will make an effort to resolve the issued at the local level through review and investigation of the matter.

2. The Program will form a college committee to investigate the issue. The committee will be comprised of Program officials, a faculty member from a different health sciences discipline, the Assistant Dean of Health Sciences, and a representative from the student government association.

3. The committee will formulate a response to the Joint Review Committee within 30 days of receipt of complaint.

POST ASSOCIATE DEGREE STUDY

The Inter American University of Puerto Rico, San Germán Campus, is authorized to offer the Bachelor of Science in Radiological Sciences. The Bachelor consists of a comprehensive educational program for students who have an Associate Degree in Radiologic Technology and for certified radiological technologists. The main purpose of the Program is the development of clinical competence in advanced modalities of diagnostic images: Computerized Tomography and Magnetic Resonance.

There are several undergraduate and graduate programs in the United States and Puerto Rico with offerings in the area of Radiologic Technology and its related modalities. The academic program will guide those students interested in continuing studies after the complexion of the Associate Degree.

DISTRIBUTION OF CREDITS BY COMPONENT

The suggested courses distribution given to program students is as follows:

CURRICULAR SEQUENCE: 78 CREDITS

FIRST YEAR

FIRST SEMESTER

COURSE	CRS	PREREQUISITE
GEIC 1010	3	
GEMA 1200	3	
RATE 1130	3	
RATE 1141	3	**Be admitted**
RATE 1110	2	**to the**
RATE 1125	2	**Program.**
CREDITS	**16**	

SECOND SEMESTER

COURSE	CR	PREREQUISITE
GESP _____	3	
GEEN _____	3	
RATE 1142	3	
RATE 1221	2	**RATE 1101,**
RATE 1230	3	**1110, 1125,**
RATE 2910	1	**1130**
CREDITS	**15**	

SECOND YEAR

FIRST SEMESTER

COURSE	CR	PREREQUISITE
GEEN _____	3	
GEHS 2010 or GEEC 2000	3	
RATE 2090	3	**RATE 1110,**
RATE 2222	2	**1221, 1230,**
RATE 2231	3	**2910, GEMA**
RATE 2912	3	**1200**
CREDITS	**17**	

SECOND SEMESTER

COURSE	CR	PREREQ.
EGHS 3050	3	
RATE 2223	2	**RATE 2222,**
RATE 2232	3	**2090,2231,**
RATE 2240	3	**2912.**
RATE 2913	3	
CREDITS	**14**	

THIRD YEAR

FIRST SEMESTER

COURSE	CR	PREREQ			
GECF 1010	3	GESP 1101			
GESP _____	3				
RATE 2260	2	**RATE 2223,**			
RATE 2270	2	**2232, 2240,**			
RATE 2919	3	**2250, 2917**			
RATE 2210	3				
CREDITS	**16**				

NOTE: Only those students admitted to the Program will take major requirements courses (RATE).

COURSES DESCRIPTION IN RADIOLOGIC TECHNOLOGY

RATE 1110 PATIENT CARE – 2 CREDITS

Development of the ability to provide holistic care to the patient during radiological procedures. Discussion of the management and patient care through the assessment of the physical needs during radiographic procedures, taking into consideration the ethical and legal aspects that govern the profession. Development of basic skills related to effective communication, personal care, handling of body fluids and medical emergencies in imaging facilities. Requirement: Be admitted to the Radiological Technology Program.

RATE 1125 INTRODUCTION TO RADIOLOGIC TECHNOLOGY AND ETHICAL CONCEPTS – 2 CREDITS

Study of the history and evolution of Radiologic Technology. Discussion of basic principles of radiation protection and contrast media. Description of the duties and responsibilities of the future professional, focused on the ethical and bioethical concepts of the discipline. Development of positive attitudes towards their patients, teamwork and interaction with other people and professionals who are part of the interdisciplinary health team. Requirement: Be admitted to the Radiologic Technology Program.

RATE 1130 RADIOLOGIC PROTECTION- 3 CREDITS

Visualization of radiologic protection principles. Radiologic technologist protection responsibilities with patients, staff and general public. Study of the regulatory agencies in charge of radiation protection and its regulations. Requirement: Be admitted to the Radiologic Technology Program.

RATE 1141 BIOLOGY AND RADIOGRAPHIC ANATOMY I – 3 CREDITS

Study of Biology basic concepts through radiographic analysis. Discussion of the cell, tissues, organs and main body systems components. Identification of the fundamental characteristics of the skeletal, muscular, nervous and sensory systems of the human body from the anatomical and physiological perspectives, through the analysis of radiographic images of different diagnostic modalities. Requires a total of 45 lecture hours. Requirement: Be admitted to the Radiological Technology Program.

RATE 1142 BIOLOGY AND RADIOGRAPHIC ANATOMY II – 3 CREDITS

Study of the endocrine, reproductive, cardiovascular, lymphatic, immune, excretory, respiratory and digestive systems of the human body from the anatomical, physiological and radiographic perspectives, using radiographic images. The fundamentals of sectional anatomy related to radiographic routines and protocols are discussed. Requires a total of 45 lecture hours. Requirement: RATE 1141.

RATE 1221 RADIOGRAPHIC EVALUATION AND PROCEDURES I – 2 CREDITS

Evaluation of radiographic procedures and techniques applied to the thorax, abdomen, upper extremities and pectoral girdle. Evaluation and critique of radiographic images. Development of attitudes as respect, responsibility and confidentiality in the classroom and clinical setting. Laboratory practice demonstration to facilitate understanding of the course content. It requires 15 hours of lecture and 45 hours of laboratory. Requirements: RATE 1110, 1125,1130.

RATE 1230 PRINCIPLES OF EXPOSURE AND RADIOGRAPHIC PROCESSING – 3 CREDITS

Discussion of the essential concepts that control the formation process, exposure, processing and storage of radiographic images. Requires 30 lecture hours: and 30 hours of laboratory. Requisite: RATE 1130.

RATE 2090 PHARMACOLOGY AND VENOPUNCTION – 3 CREDITS

Study of the basic concepts of pharmacology, venipuncture, administration of contrast media and intravenous medications. Discussion of patient care during procedures using radiographic contrast. Requirement: RATE 1110.

RATE 2210 CRITIQUE AND RADIOGRAPHIC QUALITY CONTROL – 3 CREDITS

Analysis of radiographic images and the factors that contribute to its quality. Discussion of the radiographic standards in order to produce an optimal image. Evaluation of radiographic clinical images through radiographic critique sessions. Requirement: RATE 2223.

RATE 2222 RADIOGRAPHIC EVALUATION AND PROCEDURES II – 2 CREDITS

Evaluation of the radiographic procedures and positioning techniques of the skeletal system such as: lower extremities, pelvic girdle, spine and rib cage. Routine and special positions are included, as well as the safe management of patients with spinal trauma. Critique evaluation session of radiographic images. Development of attitudes as respect, responsibility and confidentiality. Laboratory demonstrations to facilitate understanding of the course content. Requires 15 lecture hours; and 45 hours of laboratory. Requirement: RATE 1221.

RATE 2223 RADIOGRAPHIC EVALUATION AND PROCEDURES III – 2 CREDITS

Study of the positioning, exposure techniques, indications and contraindications of radiographic studies with contrast media. Evaluation of the radiographic quality, patient preparation and allergic reactions. Routine and special positions of the skull and facial radiography. Laboratory demonstrations to facilitate understanding of the course content. Requires 15 lecture hours and 45 laboratory hours. Requirements: RATE 2090, 2222, 2912.

RATE 2231 RADIOLOGIC PHYSICS I – 3 CREDITS

Study of the structure and atomic terminology. Discussion of the physical concepts associated with the nature and characteristics of radiation, X-rays production, and the fundamentals of photons and matter interactions. Requirements: GEMA 1200, RATE 1230.

RATE 2232 RADIOLOGIC PHYSICS II – 3 CREDITS

Study of the basic concepts of the X-ray circuit. Emphasis on the physical principles of radiographic equipment, fluoroscopy and mobile units. In addition, the discussion of the equipment design requirements its included. RATE 2231 requirement.

RATE 2240 RADIOGRAPHIC PATHOLOGY AND MEDICAL TERMINOLOGY – 3 CREDITS

Discussion of the basic concepts and medical terminology associated with the disease and its etiological considerations in different systems of the human body. Analysis of the radiographic appearance of different diseases and their implication in the selection of exposition technical factors. Requirements: RATE 2222, 2912.

RATE 2260 RADIOBIOLOGY – 2 CREDITS

Application of the principles of radiation interaction in living systems. Effects of radiation on molecules, cells, tissues and the human body. Study of those factors that affect the biological response, including the acute and chronic effects of radiation. Requirements: RATE 1130, 2232.

RATE 2270 MODALITIES AND DIAGNOSTIC IMAGE EQUIPMENT- 2 CREDITS

General evaluation of the different diagnostic and treatment modalities such as: Bone Densitometry (DEXA), Ultrasound (US), Computed Tomography (CT), Magnetic Resonance Imaging (MRI), Mammography, Angiography, Radiotherapy and Nuclear Medicine. Requirements: RATE 2222, 2223.

RATE 2910 CLINICAL PRACTICE I – 1 CREDIT

Introduction to a current healthcare scenario and to the standards of the profession and basic and routine aspects of a radiologic imaging department. Observation of the radiographic protocol to produce a radiographic image, from arrival to dismissal of the patient, such as: registering the patient, reading and interpreting the radiographic medical order, guiding the patient, executing the radiographic procedure, manipulating and processing the radiographic image. The student will perform 60 hours of supervised clinical observation in a simulated setting and in the radiologic department of an affiliated clinical institution.

RATE 2912 CLINICAL PRACTICE II – 3 CREDITS

Supervised clinical experiences aimed to integrate the cognitive, affective and psychomotor aspects of the radiologic technology student. Collaboration and participation in the execution of radiological procedures in the anatomical areas of the chest, abdomen, upper extremities and pectoral girdle. Application of positive values and attitudes that allow the development of independence and confidentiality in the work area in order to provide an excellent service or treatment to the people with whom the student interacts. Requires 180 hours of supervised clinical practice at an affiliated health institution. Requirements: RATE 1221, 2910.

RATE 2913 CLINICAL PRACTICE III – 3 CREDITS

Supervised clinical experiences aimed to integrate the cognitive, affective and psychomotor aspects of the radiologic technology student. Collaboration and participation in the execution of radiological procedures in the anatomical areas of the lower extremities, pelvic girdle, vertebral column and rib cage. Application of positive values and attitudes that allow the development of independence and confidentiality in the work area in order to provide an excellent service or treatment to the people with whom the student interacts. Requires 180 hours of supervised clinical practice at an affiliated health institution. Requirements: RATE 2222, 2912.

RATE 2919 CLINICAL PRACTICE IV – 3 CREDITS

Supervised clinical experiences aimed to integrate the cognitive, affective and psychomotor aspects of the radiological technology student. Collaboration and participation in the execution of radiological procedures in the anatomical areas of the skull, facial bones and special radiographic studies. Application of positive values and attitudes that allow the development of independence and confidentiality in your work area in order to provide an excellent service and treatment to the people with whom the student interacts. Requires 180 hours of supervised clinical practice at an affiliated health institution. Requirements: RATE 2223, 2913.

SPECIAL REQUIREMENTS FOR THE PROFESSIONAL ROLE

Puerto Rico Board of Radiologic Technology is the mandatory regulatory body having the authority to make and enforce rules and regulations concerning the radiographers. The Board allows graduates of accredited schools of Associate Degree in Radiologic Technology to take the licensing examination. Those who successfully meet the requirements for licensure are then given a license to practice in the Island. The license must be renewed each three years.

The American Registry of Radiologic Technologists (ARRT) is the voluntary national regulatory body having the authority to make and enforce rules and regulations concerning the radiographers in the United States, Puerto Rico and other countries. It allows graduates of accredited schools of Associate Degree in Radiologic Technology to obtain a certification or take the national licensing examination. Those who successfully meet the requirements for certification or licensure are then given a certificate or a license to practice in the United States or its territories.

II. CLINICAL PRACTICE PROGRAM REGULATIONS

INTRODUCTION

Radiologic Technology is a health professional who uses simple and complex radiographic procedures using radiant energy (commonly known as x ray), to produce radiographic images that contribute to the patient diagnosis. The Radiographer must be academically prepared in Medical Terminology, Physics and Radiobiology, Human Anatomy and Physiology, Chemistry of Developing, Radiographic Exposition, Radiographic Positions, Radiologic Protection, Ethics and Moral, Special Studies, Quality and Control and other related aspects.

The Associate Degree in Radiologic Technology of the Inter American University of Puerto Rico, San German Campus, has a faculty competent in the current radiological sciences field. The faculty's quality offers the student the opportunity to develop in a holistic way which includes the professional, academic and personal aspects.

The main program's objectives are to prepare excellent, competent and sensitive radiographers to serve the Puerto Rican community and the general society. The program is firmly committed to attend the demands of this professional in Puerto Rico.

The Clinical Handbook invite students, faculty, administrators and related personnel to study the Program's Clinical Regulations. It is the document to follow as the development model for the Program.

CLINICAL EDUCATION

The purpose of the clinical education is to prepare students for future roles and to practice. The clinical settings is the place where students can apply newly acquired knowledge and skills, think critically, make clinical decisions and acquire professional values necessary to work in the health environment. Achievement of this competence level requires a well-defined plan of clinical experiences to be followed by students.

A balanced education must be adjusted to selected contents that are not limited to routine radiographic procedures. It includes special studies of the body system using contrast media, thorax and breast studies and procedures applicable to multi-traumatized patients. Students training also include, the use of portable X ray unit, operating room procedures and general knowledge related to current radiographic modalities (CT Scan, Magnetic Resonance Imaging, Ultrasonography).

Student domain of cognitive, psychomotor and affective abilities must be assured through the selected clinical experiences. The Clinical Coordinator (CC) is the program faculty member that visits the clinical settings periodically to know what's going on with the students assigned there. The Clinical Instructor (CI) or Radiographer is the member of the clinical setting staff to whom the student is assigned for the clinical experience.

The CI renders a verbal or written report of the student progress and evaluates the student in specific areas of radiographic procedures. The formats for clinical evaluations are provided in the clinical area of the Program and Clinical Student Handbook.

CLINICAL ROTATION SUPERVISION/REPEAT POLICY

The student's health and safety are a major critical area observed by the Program. While performing clinical assignments, the student is directly responsible to the staff radiographer in charge of the assigned room/area and to the Clinical Instructor. The student must have adequate and proper supervision during all clinical assignments. Until the student reaches basic competencies documented by the clinical instructor, supervision is expected on all radiographic studies. This means that the radiographer collaborates with the student in the handling of the patient and will be present to clarify doubts or to correct the work of the student. In order to assurance that medical imaging procedures are performed under the direct and indirect supervision two parameters delineates the student compliance.

Direct Supervision (D)

Each student progresses from the role of observer and assistant to relative independence according to initiative and capabilities. Until a student achieves and documents competency in any given procedure, all medical imaging procedures shall be carried out under the direct supervision of a qualified radiographer. To ensure proper supervision, students will be assigned to a qualified radiographer in the appropriate scheduled area. A qualified radiographer will:

- Review radiographic studies card or medical order and will determine if the student can perform the task by himself.
- Evaluate patient's condition in relation to the student's knowledge and will determine if the student can perform the task.
- Be present during the execution of the radiographic study.
- Review and approve the radiographic study.

All fluoroscopy examinations require ***Direct Supervision,*** even if a student has demonstrated a competency in fluoroscopy. After demonstrating competency, the student may perform those procedures with ***Indirect Supervision.***

Indirect Supervision (I)

This means that the student will perform the assigned procedures without the immediate presence or minimal supervision from a licensed radiographer. There will be always a Clinical Instructor or Radiographer available adjacent to the room or location where the procedure is being performed to give immediate assistance to the student. ***Immediate Assistance*** means the availability of a qualified radiographer to assist the student independently of the level of the competency achieved by the student at the moment. ***The student shall not take the responsibility or the place of a qualified staff radiographer and will never be allowed to approve and send images for radiologist interpretation.***

To demonstrate competency, the student should carry out the x ray study five (5) times under ***Direct Supervision*** before being able to carry out the study under ***Indirect Supervision.***

RADIOGRAPHY REPETITION

Repetition of non-satisfactory images must be always under the supervision of a qualified staff radiographer of the student's competency level. ***The student must also assume responsibility for assuring that all repeat radiographs are performed under the direct supervision of a staff radiographer.***

CLINICAL INSTRUCTOR (CI)

Each affiliated clinical instruction facility has a Clinical Instructor responsible for the evaluation of the competency level of students in clinical areas. For evaluation and organizational control purposes the clinical instructor is the Department of Radiology Supervision. The Clinical Instructor (CI) is supported by the technology of the Department who functions as radiographer for the Educational Program.

Clinical Instructor and Radiographers area considered Ad-Honorem Instructor and have the following responsibilities:

- Assign the student in the learning area.
- Control attendance of the student.
- Evaluate competencies according to the clinical level of the student.
- Other tasks inherent to their functions as representative of the Radiology Department of the clinical affiliate.

CLINICAL AFFILIATIONS

The educative program provides a theoretical knowledge and simulated laboratory sessions. The Program is responsible for the coordination and guard that the activities assigned to the students in the clinical area correlate with the clinical affiliation. In order to assure that this happens, a formal agreement (contract) between the academic institution and the clinical affiliate has been established defining the responsibilities and obligations of each. Supervision, security, benefits and professional negligence are clearly delineated in this contractual agreement.

The hiring of the clinical affiliation follows the following criteria:

1. The use of the facility is consistent with the mission and educative philosophy of the University.

2. The personnel of the clinical facility participate in obtaining the goals and objectives of the program.

3. The clinical facility provides the human and physical resources that facilitate the competencies of the students and the achievement of the objectives.

PROGRAM DIRECTOR (PD)

The program director must be responsible for the coordination of all the organizational, administrative, scheduled inspection, continuous development and general effectiveness of the program. In addition, the program director guides the process of admission, orientation, academic direction, evaluation, curricular revision, promotion of proposals of programs in related areas, contractual coordination and other tasks of educative nature that promote the participation of the faculty and students. The program director responds to the Academic Director of the School of Nursing and Health Sciences.

All grievances, communications or recommendations must go first, through the Clinical Coordinator who makes the decision to refer or not the case to the Program Director.

CLINICAL COORDINATOR (CC)

The Clinical Coordinator is the person in charge coordinating the clinical education with the didactic education, maintaining contact between the Program, the affiliates and the students assigned. In addition, the Clinical Coordinator will visit the clinical areas and evaluates the competition levels that the students are reaching.

Clinical Instructor must use the evaluation formats of this purpose included in the Student manual Clinical Practice Section. Their responsibility is to determine the final qualifications of the students and will collaborate in the establishment of norms to be followed. The Clinical Coordinator responds to the Director of the Program. The Clinical Instructors respond to the Clinical Coordinator.

CLINICAL REGULATIONS

The students enrolled in the Radiologic Technology Program will must follow the rules in student behavior as they appear in the Student Regulations Manual published by the Institution. Copy of this manual is available at the Dean of Students Office. A legal contractual agreement has been formalized with this purpose. A clinical facility is the place where the student will be practicing once enrolled in the different laboratory courses. Student must understand that may be one of this clinical setting will be the place of work once they finish their carrier. They must follow the rules and regulations of the clinical setting.

The Clinical Performance Handbook is a clear, updated and uniform document. Noncompliance will adversely affect the student evaluation made by the Clinical Instructor. In cases of non-compliance, the clinical instructor must submit a written report to the Program Director and Clinical Coordinator. If after an interview with the program's representatives the student persists in his/her behavior, and indefinite suspension may be recommended as stated in the Clinical Performance Handbook and institutional regulations.

GENERAL OBJECTIVES

The general objectives of the Clinical Regulations is to be a guide to student acquisition and development of radiographic procedures technical skills to be applied in a varied population, after completed the theoretical background of each area of study. It also, aspires to develop and practice healthy habits in the working environment, with patients and family, and the health team. The Program has a firm purpose on developing the student professionally and academically through the active participation in the academic and administrative process of the Institution. In addition, the student will:

1. Apply knowledge of the radiological protection principles to clients, peers and themselves.
2. Demonstrate knowledge of the anatomy and physiology, radiographic positions and expositions, and others to obtain a radiographic image of maximum quality and value for diagnostic purposes.
3. Determine adequate exposition factors to obtain an optimum radiographic quality with the least radiant dose patient exposition.

4. Evaluate radiographies to make critiques inherent factors to the profession exercise.
5. Take initiative in the decision making to perform the correspondence radiographic study.
6. Provide the patient with the care that applies to the radiographic study assigned.
7. Recognize emergency conditions and the first aid techniques applicable.
8. Develop attitudes which best support their participation as part of the health team that share with them the patient wellbeing.
9. Apply adequate management and protection techniques to patients.

CLINICAL ASSIGNMENTS

Students must comply with a clinical rotation program throughout several healthcare institutions affiliate to the Inter American University at San German Campus. The faculty will consider the student's place of residence to assign them to close clinical facility.

Student's accommodations in the clinical areas are under the total decision of the Program's Officials. Students are not assigned two consecutive semesters in the same clinical facility. This practice allows the student's development in different work settings and areas of technological competence. Also, it provides for the evaluation of professional competencies previously established and that the student should obtain to advance in the professional life.

The clinical assignment will have duration of five (5) academic semesters divided as follows:

RATE 2911: Clinical Practice I

RATE 2912: Clinical Practice II

RATE 2913: Clinical Practice III

RATE 2917: Clinical Practice IV

RATE 2918: Clinical Practice V

An academic calendar for the clinical practice will be prepared each semester for students and clinical instructors.

Students will not receive any economical remuneration from the healthcare institution once enrolled in a clinical practice course. Also, the Educational Program will not assume any legal responsibility if the student is present in the clinical areas out of the scheduled time. Students will be allowed out of the allotted schedule only when authorized in writing by the Clinical Coordinator and Clinical Instructor.

INFECTION CONTROL

Prevention and infection control are important concerns for all healthcare facilities. The educational program will provide periodic education updates on infection control in the clinical areas. It's the student responsibility to be vaccinated against Hepatitis B virus before the start of the clinical practice. Evidence of vaccination must be submitted to the clinical affiliate by the Program. The use of gloves, masks, and any other personal protection equipment for the student is mandatory. Students must follow universal precautions with respect to hand washing, infection control, and proper disposal of medical waste.

If a student experiences a needle stick or exposure to body fluids, he/she is to cleanse the area, then call the Supervisor.

Any skin abrasions and/or wounds need to be covered to prevent contamination from patient to employee or vice versa.

DRUGS, ALCOHOL AND WEAPONS

The use of alcoholic, beverages, controlled substances and weapons are totally prohibited. The educative program and the clinical affiliate will take action on behaviors that constitute violations to these norms.

ATTENDANCE

Once the students are assigned to the clinical affiliate, attendance is mandatory and the scheduled must be followed. The Program will provide the clinical affiliate with an Attendance sheet to evidence student compliance. The attendance sheet must be kept in the clinical area, completed in a daily basis and signed by the clinical instructor or radiographer. If for a valid reason the student has to be late or absent, it should be noted in the form. Any absence, to be justifiable, will require a medical or legal excuse or any other justification that the Clinical Coordinator or Instructor considers reasonable.

Habitual late arrivals may result in a reduction of final grade, or in the total failure of the course. Each three (3) late arrivals of fifteen (5) minutes or more, will be informed to the Clinical Coordinator and be considered one absence.

Three (3) or more absences from the course RATE 2911: Clinical Practice I, equals a partial withdrawal from the course. Three (3) or more consecutive absences in the courses RATE 2912, 2913, 2917 and 2918 (Clinical Practice courses) require a medical or legal excuse submitted to the Clinical Coordinator with a copy to the Clinical instructor. The student must keep a copy of the submitted excuse in the Student Manual of Clinical Practice.

CLINICAL HOURS REPOSITION

In those cases where the student can justify with the proper evidence any absence or late arrivals to the Clinical Areas, lost must be recovered during the frame of time indicated by the Clinical Coordinator. Students in this situation should apply for an appointment to be authorized.

ABSENTISM TO PRACTICAL EXAMS

The practical exams are offered by the program's faculty in coordination with the Clinical Coordinator and the Clinical Instructor. The practical exams will be unannounced. Any student who is absent on the day that a practical exam is given will receive a grade of zero (0) for that exam.

If within the next five (5) working days, the student justifies the absenteeism, the Clinical Coordinator can authorize the rescheduling of the practical exam for another day.

CLINICAL EVALUATIONS

The clinical evaluations of the student will be based on their level of competency in techniques and professionalism attributes to the profession. Such being the case, a manual has been prepared for the evaluation of students during and after each clinical rotation. The evaluations have been prepared by both the Clinical Affiliates and the Educational Program. In the evaluations, the Clinical Coordinator and the Clinical Instructor will use a pre-established scale.

All the evaluations will be discussed with each student and signed. Simulated evaluations can be carried; however, such simulation shall be given after special consideration and where the radiographic study does not interfere with the utilization of other resources needed for the evaluation of the student.

The Clinical Coordinator is responsible for quantifying the student's final grade. A verbal or written report of the findings and recommendations by the coordinator or instructor for the student shall be discussed with the student so that in future clinical assignments the student will be encourage self-assessing.

The Clinical Coordinator will offer periodic practical exams. The visits shall be unannounced. During the visit the coordinator will ask and observe for the followings:

1. Completed Student's Clinical Performance Handbook
2. Use of personal dosimeter
3. Use of uniform
4. Human and ethical relations
5. Evaluation of skills and competencies
6. Interview with the Clinical Instructor

If the student is removed from the area due to unjustified absenteeism or tardiness or for a significant incident, the student shall receive a grade zero as a final grade. The student will have to repeat the rotation the next time it's programmed, and the Clinical Affiliate will be determined by the Clinical Coordinator.

A final grade of **80%** or more is required to pass to the next level (next Clinical Practice course). The grade shall be obtained by the student according to the previously established values in the Student Manual of Clinical Practice.

ACCIDENTS

The Inter American University at San German provides an insurance of professional negligence and public responsibility to cover students and faculty in cases of accidents during the clinical practice. Any accident in the clinical area where students are participating must be evaluated to determine level of negligence and damages. It must be reported immediately to the Clinical Instructor. The Instructor must notify the program which then will establish the steps to be followed. The Program Director follows the guidelines given by the academic institution for the case management. Healthcare institutions are required to give the emergency care.

STUDENT SAFETY

The following rules and recommendations have been established to maintain the students' safety when in the clinical environment. Any violation may result in compromise of the students' safety.

- Students will adhere to the safety regulations set forth by the clinical facility. These includes following those that applies the security and fire regulations.
- When students are at their assigned clinical educational center, they **MUST**:
    - Follow the department's Radiation Protection Policies.
    - Always be under either **DIRECT** or **INDIRECT** supervision by a licensed and registered Technologist.
    - Participate in a facility orientation within the first week of arriving at a clinical education site.
    - **Follow the following *MRI Safety Protocol***
        - **Receive orientation and training prior to entry to the MR imaging area at each new facility.**

- **Students must complete an MR safety checklist prior to initial entry to each clinical education site MR imaging suite and follow all protocols.**
- **Students must be oriented to the MR facilities protocols prior to entering the MR imaging area.**
- **Students are to remain under DIRECT supervision in the MR imaging area at all times.**

  - The student must follow the Program's and Clinical Education Center's Radiation Protection Program.

- When students are at their assigned clinical educational center, they **MUST NOT**:
  - **Hold patients during a radiographic procedure.**
  - **Inject any contrast media or medication.**
  - **Support an image receptor during radiographic exposures.**
  - Perform radiographic exams unless a licensed and/or registered Radiologic Technologist is present (direct supervision) or in the immediate area (indirect supervision) as appropriate.
  - Perform radiographic procedures not yet learned didactically.
  - Use fluoroscopy as a way to position patients for radiographic positions.
  - Perform repeat images without the consent and direct supervision of a State of Puerto Rico licensed and/or registered Radiologic Technologist

- Students will utilize proper body mechanics when interacting with and moving patients, equipment, and/or supplies. Proper body mechanics are taught to the students in the *Patient Care* course RATE 1110.

- Students must follow universal precautions with respect to hand washing, infection control, and proper disposal of medical waste.

- When entering patient's rooms, adhere to any contact or respiratory precautions required. Use the appropriate personal protective equipment.

- Report any suspicious or violent behavior to hospital security or dial 911.

- If a student experiences a personal injury, he/she is to fill out the necessary incident report forms required by the hospital and notify the Clinical Coordinator.

- ***Failure to comply with any of the above mandates will result in disciplinary action by the program and possible program dismissal.***

PREGNANCY POLICY

The Radiologic Technology Program adheres to the JRCERT's standard with regards to the declaration and discussion of pregnancy, including the appropriate course of action once the declaration of pregnancy has occurred. This policy is also found in the *Radiation Protection Policies for Radiologic Technology Students* document.
Declaration of pregnancy is at the discretion of the student. In order to protect the fetus, the student may discuss any suspected pregnancy with the Program's Coordinator and with the Program's Radiation Safety Officer. Whether or not the student decides to declare pregnancy, the student is advised to consult with her physician.
Female radiography students will make their own choice whether or not to declare pregnancy. The Program will consider the female student a *declared pregnant woman* when *she has* ***voluntarily informed***, to the Clinical Coordinator and to the Program's Radiation Safety Officer of her pregnancy. This notification must be in **writing** and include the following information:

a. Student's Name
b. Expected date of birth or date of conception
c. Social Security number
d. Student's date of birth

1. Should the student choose to voluntarily declare her pregnancy and remain in the program the student will continue to complete all programmatic requirements without modification.

2. The student has the option to continue in the program without modification or request a leave of absence, per the University's policy. The request shall be granted with proper documentation. Upon completion of the leave, the student may choose to be reinstated in the program as outlined in the ***Readmission Policy*** as stated in the General Catalog 2015-17 (p. 40). The student will be permitted to re-enter the program into same course of which they took leave from the program. The program will not offer "out of sequence" course(s) to accommodate returning students.

3. The student shall not receive an embryo/fetal exposure dose of more than 500 mrem during the gestation period nor should the monthly equivalent dose exceed 40 mrem.

4. The radiation safety officer will review the badge reading with the student on a bi-monthly basis. The student's initials will document knowledge of her current radiation levels.
5. A student who has given voluntarily notice of pregnancy to the radiation safety officer may submit a written withdrawal of the notification at any time.
6. The radiation safety officer will meet with each student who has voluntarily declared pregnancy to review the clinical environment and course objectives to assure a less than 40 mrem exposure per month. If the student's radiation exposure dose exceeds 400 mrem during the gestation period or should the monthly dose exceed 40 mrem, the student may be required to take a leave of absence from the program. Upon completion of the leave, the student may choose to be reinstated in the program as outlined in the Readmission policy.
7. **Pregnant students are responsible for following all safety precaution protocols for pregnant personnel in MR.**

If a student, after declaring a pregnancy, wishes to undeclared that pregnancy, this must also be done in writing to the college's radiation safety officer.

Pregnancy Policy Clinical Options

According to the student's decision, she can select one of the following options:

Option One: Modifications to my Clinical Practice (Declare Pregnancy)
If the student decides to declare her pregnancy, she must complete the Declaration of Pregnancy Release Form and request modifications to her Clinical Education. Upon declaring herself pregnant, the student will meet with the Program's Clinical Coordinator and Program's Radiation Safety Officer who will review the Program's Pregnancy Policy with her. The student will be given a series of articles dealing with a pregnant woman in the clinical area of a radiology department to read. The student will receive orientation regarding methods to reduce exposure from ionizing radiation. A lower radiation limit, below 0.05 rem per month and below 0.5 rem during the gestation period, will apply to her according to the National Council on Radiation Protection and Measurements (NCRP) *(The declared pregnant woman's occupational dose and the dose to an embryo/fetus are specified in 10 CFR 20.1208 - NRCP)*. It is recommended that the student wears a wrap-around apron during fluoroscopic procedures. Under no circumstances will the pregnant student hold or assist in holding patients or image receptors while radiographic exposures are made. It is appropriate, although not necessary, to provide the pregnant student with an additional monitor to be worn at waist level under the apron to monitor fetal dose.

Option Two: Continue in the Program with No Modifications Clinical Education

The student may elect not to request any modifications to her clinical practice. If the student decides NOT to declare her pregnancy or wishes to undeclared a previously declared pregnancy, in writing, she will be asked to review the declared pregnant woman's occupational dose and the dose to an embryo/fetus as specified in *10 CFR 20.1208 – NRCP,* and that she accepts full responsibility for any increased risks associated with exposure to her unborn child. Pregnant students are expected to meet all objectives and clinical competencies of each Radiologic Technology courses so she will continue on her assigned Clinical Education without any modifications. The faculty of the program will recommend the student to use the basic principles of protection (distance, shielding and time).

Option Three: Leave of Absence from the Program:
The pregnant student may voluntarily decide to take a leave of absence from the program while pregnant. She will have the option to terminate her Clinical Education and continue in the didactic component of the program. When the student decides to re-join the program, the student must meet with the Program's Clinical Coordinator to discuss the Program completion plan. The Clinical Education courses missed shall be completed postpartum. Placement into the program will be determined by their past performance, level of competency and rotations missed. Program completion and graduation date will be based on the course load left in the program upon return. This may result in postponement of the PR State License or national certification examination.

PATIENT SAFETY

Inter-American University Radiologic Technology Program at San German Campus is dedicated to promoting and ensuring the safety of all patients. This is inclusive of proper patient identification.

Students are responsible for adhering to the Patient Safety Goals established by their clinical site. These include, but are not limited to:

- Identifying patients correctly. Use at least two methods to identify patients, such as full name and date of birth.

- Using proper communication among staff. Communicate to all personnel involved about the status of the patient, including any known allergies.

- Prevention of infection. Employ the proper techniques to prevent the spread of infection, such as hand washing and proper disposal of medical waste.

- Prevention of patient injuries. Take precautions to ensure the safety of all patients with regards to bedrails, obstacles, and other hazards.

- Prompt response. Be mindful of the status of the patient from the start of your encounter. Regularly assess the condition of the patient, and report any deterioration in condition to the appropriate medical personnel.

- Appropriate use of restraints. Understand the appropriate use of restraints, including the application and release of restraints.

- Use of emergency response codes. Know the types of emergency response codes applicable to the clinical setting and the appropriate action to take.

- Protective shielding must be used on all examinations unless it interferes with the examination. Protective shielding includes shielding the gonads of both gender as well as proper collimation as required.

LUNCH BREAK

Time for snacks and lunches must be planned by the Clinical Instructor. Nevertheless, all students have the right to a break of then (10) minutes in the morning and ten (10) minutes in the afternoon. The lunch break will be within an hour range (a minimum of 30 minutes and a maximum of one hour).

Students will not use the lunch period as a mean to complete the program's required practice hours.

UNIFORMS

All students of the Radiologic Technology Program must use a uniform and a white gown during the clinical practice. All students will dress a "Navy Blue" pant and shirt set (scrub) and closed black shoes. **Other colors of scrubs are not allowed.** Uniform are available in Pro Medical Uniforms Store localized in road #2 Mayaguez, Puerto Rico. **Jeans, short pants, over the knee skirts, excessive make up, long earrings, long artificial (organic resin or gel) nails, athletic sandals or any other clothing apparel detrimental to the safety and professional image of the student are not permitted.** Females must keep hair over the shoulders level or tied back. Males are not permitted to have long hair or earrings including body piercing. All students must keep a clean, pleasant personal appearance, a high sense of belonging and professional commitment. Visible tattoos are to be covered to the extent possible to present a professional image.

Any student that attends the Clinical Area without the required uniform may be sent to home by the Clinical Instructor or by any Program Instructor. Repeated failures related to the use of the uniform could end in the student suspension from the clinical

practice, and eventually from the Program. Occasional noncompliance will result in a decrease of the partial or final student grade.

Students of the Program will use the uniform for lectures, clinical assignment, and laboratory sessions, practical examinations or when representing the institution in official activities with Program Office authorization. **Under no circumstance will students be allowed without uniform on the clinical rotation unless there is a written authorization from Program officials.**

MATERIALS

Each student in the Clinical Area must have a “Right-Left” (R-L) marker, a small notebook, a wax pencil and the course’s textbook.

TRANSPORTATION

The student is responsible for their transportation to the clinical facility. **Attendance to the practice setting is mandatory.** Enrollment in the clinical practice will not be used as an excuse for not participating in the academic activities of the Institution.

CONFIDENTIAL INFORMATION

All documents of the Clinical Affiliation, including patient’s history and radiologic diagnostics, are under HIPPA Act. This means, that students must keep absolute confidentiality and follow the ethical codes inherent to the health professionals. All confidential discussion related to the patient must be management in a professional way. Never make improper comments in front of the patient, relatives or healthcare team members. Any breach of confidentiality may be cause for dismissal.

EMPLOYMENTS

The Program is proud for the high employment rate of its graduates. Nevertheless, when a student is employed as a Radiological Technology Assistant in any agency, **this will not substitute the clinical education of the student**.

CLINICAL OBLIGATIONS AND REGULATIONS FOR STUDENTS IN CLINICAL SITES

All students will be responsible of the followings:

All students must be present:

- In alert conditions
- Complete uniform and gown
- Free from drugs or alcohol effects

All students must:

- Not use public telephones or mobile phones during regular working hours.
- Observe strictly the norms, acts and regulations of the healthcare institution where they are assigned.

It is absolutely prohibited:

- The use of long or artificial nails.
- The possession of controlled substances and weapons.
- Sleep during the clinical practice.
- Smoke or eat in unauthorized areas.
- Chewing gums during the practice hours.
- Use the Clinical affiliation telephones for personal calls.
- Leave the Clinical Affiliation without the Clinical Instructor's authorization.
- Leave the area outside the established schedule.
- Acceptance of any reward from patients or relatives.
- Being involved in immoral behavior including robbery.
- Signing the radiographic studies card taking complete responsibility for a given study is not permitted. The card must be signed by the Radiographer in charge. The student may initiate the study near the radiographer's signature.

The student relieves of responsibility the program faculty of any problem that may emerge from the clinical areas. Failure to follow these norms may cause the student's expulsion from the Clinical Affiliation. The time lost must be recovered according to the Regulation Manual. If improper conduct is repeated several times, an administrative withdrawal of the course may be recommended.

PROCEDURE FOR THE RESOLUTION OF COMPLAINTS

Any student who feels that the application of the politics and norms contained on this Manual are not fair, objectives and impartial, must submit a formal complaint to the Program Office or to the Dean of Students Office. It will be evaluated on its merits.

NON-DISCRIMINATORY POLICY

It is the University policy to guarantee equal opportunity to all in all its educational programs, services and benefits. The University does not discriminate against anyone because of race, color, religion, gender, national origin, handicap, age, marital status, physical appearance, political affiliation, or any other classification protected by the dispositions of Title IX of the Amendments to the Education Act of 1972, Section 504 of the Rehabilitation Act of 1973, the Americans with Handicaps Act of 1990 or any other applicable federal or state law or regulation.

III. RADIATION PROTECTION POLICIES

RADIATION PROTECTION

The Program of Radiologic Technology recognized the inherent risks of ionizing radiation on practicing students. In order to protect them there are established policies and procedures. The following policies and procedures will apply to all students admitted to the Radiologic Technology Program. These policies are reviewed annually, each January.

RADIOLOGIC PROTECTION RULES AND PROCEDURES FOR STUDENTS

- Program faculty and students will always use good Radiation Protection practices and techniques. Also, the ALARA principle will always be followed.

- All students will apply the basic principles of radiologic protection: maximize the distance between student and the source of radiation, minimize exposure time and use of protective shielding.

- All students will use personal dosimeter during their clinical rotations and they will follow the proper method of use. The instructions for the use of dosimeter are explained in the course TERA 1100: Radiologic Protection. When wearing a lead apron, the badge must be worn on the outside close to the neck region.

- Under no circumstances will students permit themselves or fellow students (or any other human being) to serve as “patients” for test exposures, experimentation or didactic purpose.

- Female students in reproductive age admitted to the program will be advised of radiation risks during pregnancy. (Refer to pregnancy policy)

    - Pregnant students must use leaded apron besides the dosimeter.

    - Pregnant students will not perform fluoroscopic studies, use portable units or be present in special study areas which require the presence of the operator outside the area.

- The program’s radiation safety officer will review dosimeter on a bimonthly basis, initiate exposure reports and assure that exposure limits are maintained by students and faculty:
    a. Maximum Permissible Dose Equivalent for Occupational Exposure for fertile women (with respect to fetus) is **500 mrem** during the entire gestation period (Bushong, 2010).

b. Maximum limit for students is **400 mrem/month or 5000 mrems/year** (Commission for the Control of Radiation of Puerto Rico, 2008).
c. Students who exceed the program's dose equivalence of **300 mrem/month** will meet with the program's radiation safety officer and clinical coordinator to determine the cause and to develop an action plan to bring the students exposure back into compliance. If a student exceeds for a second time the program's dose equivalence in any subsequent monitoring month, the student will be removed from clinical training for the remainder of that semester. After this, the student will only be allowed to return to clinical training following additional counseling with the college's radiation safety officer and clinical coordinator, and the formulation of another action plan to bring the student's exposure back into compliance. Students who exceed their dose equivalence for a third time will be suspended from clinical training permanently.

- After the exposure monthly report's revision, the radiologic physics consultant will recommend additional protective measures if needed.

- At any time during activation of the x-ray tube (when x-rays are being generated), observation will be made from the protection of the control booth.

- Specifically, students must not hold or support a patient during exposure, nor will they hold or support a cassette during exposure. If an emergency arises, protective apron and gloves must be worn.

- During activation of the x-ray tube, students must not be in direct visual line with either tube or patient. Thus, they may not observe the patient during exposure from an adjacent room or hall unless through a lead glass protective window.

- During an exposure or procedure, do not place yourself in direct line with the central ray, even though you are wearing a lead apron, and even though a lead shield is interposed between the tube and yourself. The tube must in all cases be pointing away from your body.

- During fluoroscopic procedures and bedside radiography, students will remain in the room with the patient. The following warnings will prevail:
    a. A lead apron will be worn at all times, or you will remain behind a lead protective screen and not in visible line with either tube or patient.
    b. Students must stand as far from the patient and tube as possible, consistent with the conduct of the examination.

PERSONAL DOSIMETER

All students in the Radiologic Technology Program will be required to wear a radiation monitor to measure any radiation exposure/dose the student might receive during their attendance in the Program. This includes the clinical areas.

- The radiation monitor (badge) will be supplied and maintained by the Radiologic Technology Program.

- The radiation monitoring badges will be issued to the student by the Clinical Coordinator at the beginning of the program clinical education.

- Once a student is given their first personal radiation monitor, the student is required to use and maintain it properly. The dose equivalent reading should not exceed the program threshold dose equivalent exposure of 300 mrem per month and will not exceed the NCRP occupational effective dose equivalent of 5000 mrem per year.

    - The student must wear the badge at their collar level **at all times** at the clinical education site. The badge must never be stored or placed in their car (for long periods of time) near heat, direct light or near microwave ovens.

    - If the badge gets wet, dried, damaged or lost, the student must report this immediately to the Clinical Coordinator.

- If a student does not have, or is not wearing their badge the student will not be allowed into the clinical education site.

- The student may review the radiation Dosimetry Report within thirty (30) days after the report is received by the radiation safety officer. A copy of the report with identifying information is kept locked in the Clinical Coordinator's office. The student's initials will document knowledge of his/her current radiation levels.

- A student whose badge reading exceeds the program threshold dose equivalent exposure for whole body, eye, extremities or fetal limit will be advised by the Program Radiation Safety Officer (PRSO).

- The PRSO will determine the circumstances of the excessive dose; advise the student; make recommendations based upon the student's accumulated annual dose.

- The radiation safety officer/ program director, clinical coordinator and student will participate in developing an action plan to reduce further excessive exposure.

At the completion of the Program, all radiation monitoring badges must be returned to the Radiologic Technology Program for final badge reading. A final report will be given to all students after the termination of the program.

A student is required to exercise sound radiation practices and techniques at all times. At no time may a student participate in a procedure using unsafe protection practices. This includes, but is not limited to:

1. Always use the personal dosimeter during the clinical practice.

2. A student may not take exposure, intentionally or unintentionally, on another student or while another student is in the clinical setting. All exposures on human beings are to be taken for a medically valid reason only and prescribed by a physician.

3. Never borrow the dosimeter, nor use it as an instrument to measure radiation.

4. Maintain the radiosensitive film in its badge in order to detect exposition appropriately. The plastic cover contains metallic filters which determine the type and radiation energy.

5. Keep the name in the dosimeter visible.

6. Never use the dosimeter when receiving a personal diagnostic or therapy study due that on these cases the concepts of occupational limits does not apply.

7. Don't leave the dosimeter in any area where the possibility of radiation exposition exists. If this occurs, the dosimeter's film must be changed immediately due to the facts that this radiation cannot be assigned to the user.

8. Select the dosimeter the first day every two months at the Clinical Coordinator office. All dosimeter must be returned at the end of the month specified for its processing. If badges are not turned in when requested, the student will be pulled from his/her clinical site until the badges are turned in and then required to make up the clinical time.

9. Don't leave the film in hot or moist environment areas, nor accidentally put them in the washer. If this occurs, contact the Clinical Coordinator office.

If a student does not have, or is not wearing their badge the student will not be allowed into the clinical education site. **Students who lose the dosimeter film holder will receive a replacement badge from the Program's contracted company. They must deposit twenty five ($25.00) dollars.**

Dosimeters are changed bimonthly during the first five (5) days of the month. Dosage reports are received periodically in the Clinical Coordinator Office and any abnormal findings is notified immediately via the PRSO. It's the student's responsibility to contact the Clinical Coordinator office for the dosimeter change.

The company that analyzes the dosimeter is Landauer, INC. 2 Science Road, Glenwood, Illinois 60425-1586. It is accredited by The National Institute of Standards and Technology.

Violation of the Clinical Practice Program Regulations and Radiation Protection Policies could result on the student failing his/her clinical course for that semester!

Occupational Dose Limits

Students are responsible for adhering to the guidelines for radiation safety and protection and practicing the ALARA principles. The Effective Dose Equivalent is recorded in the Radiation Dosimetry Report provided by Landauer ®. These records are kept by the Radiation Safety Officer. Students and faculty receive instruction on radiation safety and protection guidelines. Excessive Dose Guidelines are established for dosimetry report review and reporting. The occupational dose limits listed in the table below based on the NCRP Report # 116 Limitation of Exposure to Ionizing Radiation and *found in Title10, Part 20 of the Code of Federal Regulations (10CFR20).*

Occupational Effective Dose Equivalents Will not exceed		Program Threshold Dose Equivalents Should not exceed	
	mrem/year	mrem/semester	mrem/monthly
Total effective dose equivalent (whole body)	5000	1500	300
Eye dose equivalent	15000	4000	1000
Shallow dose equivalent (skin) or extremity	50000	1300	650

Pregnant Worker

Occupational Effective Dose Equivalents Will not exceed		Program Threshold Dose Equivalents Should not exceed	
Pregnant worker	mrem/year	mrem/year	mrem/monthly
	500 (entire pregnancy)	400	40

Radiation Exposure Awareness

Notification of radiation dosimetry readings will be given to students exceeding allotted radiation exposure levels. The radiation safety officer will review the report with the student to discuss unacceptable practice or inaccuracies. The student will be made aware of the importance of good radiation protection practices and recommendations will be provided to the student to correct any discrepancies in monitoring badge placement, storage and better use of good radiation protection practices and techniques. A copy of the student consultation/advisement plan will be placed in the student's file. Appropriate follow up will be done by the radiation safety officer to ensure the safety advisement plan is adhered to.

Radiation Safety Officer

Lourdes Maldonado- Mercado is appointed as the Program Radiation Safety Officer for the Radiologic Technology Program at the San Germán Campus.