ANTELOPE VALLEY COLLEGE

Radiologic Technology Program

Policy Handbook

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PROGRAM DESCRIPTION

The Antelope Valley College Radiologic Technology Program provides vocational education that leads to an associate in science degree. Students learn the knowledge, skills and attitudes that will enable them to take the national licensure exam for radiology technology and gain employment in the field.

PROGRAM MISSION

The mission of the Antelope Valley College Radiologic Technology Program is to serve the community by providing an educational setting for the development of knowledge, skills and professional behaviors essential for a foundation and career advancement in radiologic technology sciences.

PROGRAM GOALS

Goal: Students will be clinically competent.

Student Learning Outcomes:
- Students will apply positioning skills.
- Students will select technical factors.
- Students will utilize radiation protection.

Goal: Students will demonstrate communication skills.

Student Learning Outcomes:
- Students will demonstrate written communication skills.
- Students will demonstrate oral communication skills.

Goal: Students will develop critical thinking skills.

Student Learning Outcomes:
- Students will adapt standard procedures for non-routine patients.
- Students will critique images to determine diagnostic quality.

Goal: Students will model professionalism.

Student Learning Outcomes:
- Students will demonstrate work ethics.
- Students will summarize the value of life-long learning.

PROGRAM POLICIES

The Radiologic Technology Program provides concurrent classroom study with clinical education leading to an Associate in Science degree. After completing the prerequisites, students complete the program in 24 months, including fall and spring semesters, summer sessions and intersessions. Because of the full time commitment to the program, students should consider their other commitments carefully before deciding to enroll in the program.

Current clinical sites are located in Lancaster, Palmdale and Ridgecrest CA. Clinical education sites include hospitals and imaging centers in the area.

Students who successfully complete the requirements of the program may become eligible to take the Certified Radiologic Technologist (CRT) examinations administered by the State of California, Department of Public Health, Radiologic Health Branch and/or the American Registry

of Radiologic Technologists (ARRT). The program is accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT).

Supplements to this handbook include the *Clinical Handbook* and the *Radiation Safety Policy*. The policies and procedures contained in the Clinical Handbook, Radiologic Technology Program Policy Handbook and the Radiation Safety Policy are in compliance with State of California, Code of Regulations Title 17, American Registry of Radiologic Technologists (ARRT) and JRCERT. Students should become familiar with each of these documents during the introductory course and prior to any clinical practicum assignment.

Students in the Radiology Technology Program should also become familiar with the college catalog and academic policies. These policies can be found in the college catalog on the college website at www.avc.edu. Students in the Radiologic Technology must adhere to all college policies in addition to policies outlined in the Program Handbook, Clinical Handbook and Radiation Protection Policy.

ADMISSION TO THE PROGRAM

Applications for verification of prerequisites are available from the Health Sciences Division office, during the application period the semester before enrollment. Students who apply early receive preference for admission to the program. Admissions close on the day before the summer session begins. Students who are not accepted for enrollment in the program are required to re-apply for the next enrollment period, but do not need to submit their transcripts again.

Applications are accepted on a first-come, first-served basis. Only complete applications receive consideration. Instructions for the application are attached to the application form. Official copies of high school verification (high school transcript) and all college transcripts must be submitted with the application. Students must also supply a copy of a Student Educational Plan (available from the Counseling Division) with the application. Counselors decide which courses are transferable in consultation with the deans and faculty.

Admission of Minors

See the Radiation Protection Policy

PREREQUISITES

Before applying for the program, the following course must be completed with a grade of “C” or better:

BIOL 201 (General Human Anatomy)
BIOL 202 (General Human Physiology)
ENGL 101 (Freshman Composition)

PROGRESSION IN THE PROGRAM

Students must complete all courses in the program with a grade of “C” or better. Students who do not achieve a grade of “C” or better in a Radiologic Technology course may not progress to subsequent semesters. A grade of “C” is considered 75% of passing for all Radiologic Technology courses. Those students must file a letter requesting readmission for the next year as soon as possible. Students are readmitted to the program on a first-come, first-served basis, if spaces are available. In the event of a tie in submission of a letter of request for readmission, a lottery will be held to determine which student is readmitted.

PHYSICAL EXAMINATION AND BACKGROUND SCREENING

A physical examination by a medical doctor, nurse practitioner or physician's assistant is required after enrollment in the program and prior to the first clinical day. Students must meet physical requirements of the clinical agencies. Appropriate immunizations (or titers showing immunity) and screening for tuberculosis are required.

All students must undergo background screening. The college has contracted with Corporate Screening Inc. for this service. The background screening includes a national crime database search, fraud and abuse, social security number verification, and sexual offender and predator registry search.

Clinical agencies require drug and alcohol screening.

Physical examination, background screening, and drug/alcohol screening is done at the student's expense. Students must use the program forms for the physical examination. Immunizations must be current (per the Centers for Disease Control and Prevention) and titers must be obtained within one year of entering the program. Tuberculosis screening (using the two-step method) must be done annually. If the student must have a chest x-ray, this also must be done annually while enrolled in the program.

CARDIOPULMONARY RESUSCITATION

Students must maintain continuous certification in Cardiopulmonary Resuscitation (CPR) while enrolled in the program. Only American Heart Association CPR for health care providers is permissible, as our clinical agencies require this level of proficiency.

DRESS

1. Classroom Attire on Campus

   Classroom attire is casual, but must reflect the professionalism of the student radiologic technologist. Students are required to wear clinical attire (see below) while attending any laboratory hours or field trips. There will be other times that students will be required to wear the clinical uniform for class on campus. The instructor will announce in advance when this will be required.

2. Clinical and Laboratory Attire

   The complete clinical uniform must be worn during the entire time in the clinical affiliated sites, laboratory classes or field trips.

   Purchasing of Uniforms

   Students will be responsible for purchasing their uniforms. Antelope Valley College is contracted to have radiologic technology students purchase their uniforms from "DOVE." No substitutions are allowed.

   Shoes

   To promote safety for the student, shoes must cover the entire foot including the toes and heels. Clogs, canvas, or high top shoes are not permitted. Shoes must be white, neat, and clean, with no logos.

   Jewelry

   The student must possess a watch with a second hand, pencil, and pen to the first clinical assignment day. The only acceptable jewelry to be worn is a wedding

band, wristwatch, and one set of plain studs or small hoops in pierced ears. Other visible body piercing jewelry is not permitted.

Hygiene and Personal Appearance
Hair must be fashioned to promote safety, hygiene, and professionalism towards both the patient and student (e.g., long hair pulled back and off the collar). Nails may not exceed 1/8 inch in length. No acrylic nails are permitted in the clinical setting. Facial hair must be groomed at all times. Perfume, perfumed lotions, and other strong smelling substances can be hazardous to patients and are not allowed. All tattoos must be completely covered by the uniform.

Identification Badge
Radiologic technology students are required to purchase Antelope Valley College student identification badge. An Associated Student Organization Card is optional, but does not replace the identification badge. The identification badge must be worn at all times while attending a facility as a student. Some facilities, such as Antelope Valley Hospital, require that students purchase a student identification badge from their facility. Currently, the cost is $5. Badges must be worn at the collar with the name and picture clearly visible. Please do not attempt to get either of the identification badges until your instructor tells you to do so.

Dosimetry Badge
Students must wear a dosimetry badge at the collar level outside the lead apron (unless otherwise instructed by the program's RSO) while at the clinical sites and during college laboratory experiments.

Anatomic Side Markers
Students must have their own personalized anatomic side markers purchased through the bookstore while attending clinical/laboratory hours.

Students are not allowed to attend clinical without a clinical instructor on duty. If the student must go to the clinical site without the instructor for other reasons, the student must:

a. Wear professional attire.
b. Wear a lab coat.
c. Wear school or hospital identification badge.

All measures shall be maintained to protect the patient from infection, trauma, and anxiety. *The student will be dismissed from clinic if dress and/or hygiene do not adhere to policy standards.*

ATTENDANCE

1. Title 17, section 30421, of the California Code of Regulations mandates the following curriculum hours:

   Formal classroom instruction – 520 hours
   General radiographic laboratory—50 hours
   Positioning laboratory—75 hours
   Radiation protection laboratory—25 hours

Supervised clinical education—1850 hours

Attendance will be taken for each class. Students must attend every class meeting. One missed class can result in a failing grade. Presence and active participation in class is critical for meeting course objectives. In addition, professional behavior predicates arriving on time and ready to participate in learning activities in both the classroom, clinical and laboratory environment. Participation includes active and constructive input in class and group discussions, projects, clinical and laboratory assignments.

The program attendance policies conform to California regulations as stated above and the college attendance policy. The number of hours students may miss per class is posted in each course syllabus. Please also refer to the chart below for the maximum number allowable absences per course. Students who are absent more than the allowable number of absences may be withdrawn from the course per college policy and consequentially dismissed fro the program.

Course Number	Hours per week course meets = Maximum allowable absences in hours
101 Lecture	4.5 hrs or 1 class meeting (8 wks at 4.5 hrs/wk)
102 Lecture	4.5 hrs or 1 class meeting (8 wks at 4.5 hrs/wk)
103 lecture	3 hrs or 1 class meeting
103 Lab	4 hrs or 1 class meeting
103 Clinic	16 hrs or 2 clinic days
104 Lecture	3 hrs or 1 class meeting
106 Clinic/Lab	8 hrs or 1 clinic day (5 wks at 20 hrs/wk)
107Lecture	3 hrs or 1 class meeting
107 Lab	4 hrs or 1 class meeting
107 Clinic	16 hrs or 2 clinic days
108 Lecture	3 hrs or 1 class meeting
109 Lecture	3 hrs or 1 class meeting
201 Clinic	16 hrs or 2 clinic days (8 wks at 32 hrs/wk)
202 Lecture	3 hrs or 1 class meeting
202 Clinic	25.5 hrs or 3 clinic days
203 Lecture	3 hrs or 1 class meeting
204 Lecture	2 hrs or 1 class meeting
205 Clinic	8 hrs or 1 clinic day (5 wks at 24 hrs/wk)
207 Lecture	3 hrs or 1 class meeting
207 Clinic	25.5 hrs or 3 clinic days
208 Lecture	4 hours or 1 class meeting
210 Lecture	2 hours or 1 class meeting

Written excuses for absences e.g., physicians note indicating illness, is not required. Exception to this policy is related to the days of examinations and last week of the semester. Absence occurring on these days must be followed up with evidence of an excused absence. The following events are excused absences: Personal illness, illness of dependent, death in the immediate family, and court appearance. Failures to provide evidence of an excused absence will

result in disallowing the student to perform make up activities, if such activities are available.

If possible, students should notify the instructor(s) of a future absence. Students must notify the clinical instructor of an absence or late minimally one hour prior to the start of a clinical day. This notification should be in the form of a phone call the program administrative assistant at 722-6300 ext. 6204 *and* a phone call to the clinical affiliated site where the student is scheduled for the day. An email to the program director is also acceptable as a record of notification.

2. The student is responsible for maintaining a record of his/her own absence.

3. Absences may be made up in the following ways:
   a. Theory
      i. Discretion of the classroom instructor.
   b. Laboratory
      i. Skills and Experiments laboratory – at the discretion of the course or lead instructor (NOTE: some skills laboratories and experiments are only offered once during the program and require group participation. These cannot be made up and any absences that occur on the day these activities are scheduled may result in a failing grade.)

6. The student is to inform the instructor of any anticipated tardies.
   a. Excessive tardies could be reflective of negative professional behavior on the clinical evaluation form.
   b. Students arriving late to clinic will be permitted to attend at the discretion of the instructor due to safety concerns. The instructor does have the option to disallow the student into clinic that day. Late returns from lunch and breaks are considered unprofessional and may be reflected on the clinical evaluations, and lost time must be made up.
   c. Three tardies constitutes one hour of missed class or clinical time and must be made up.

7. A student may appeal an absence to the program director. If resolution of the issue is not satisfactory at this level, the student may follow the college grievance policy, which is available from the dean/director.

8. Classroom, laboratory and clinical hours will not exceed a total of 40 hours per week. Clinical assignments will not exceed 10 hours per day. These hours do not include study time. It is recommended that students plan to spend *at least* 2 hours of study and preparation time for each classroom hour scheduled per week. For example, for a 3-hour class at least 6-hours of outside study time may be needed per week to prepare for classroom activities and assessments. The amount of study and preparation time for clinical and laboratory assignments will vary upon the assignment and semester.

   The following is a typical course schedule for the program:

TYPICAL CLASS SCHEDULE

Typical Schedule	Monday (M)	Tuesday (T)	Wednesday (W)	Thursday (R)	Friday (F)
1ST Summer	**101 Lecture** 8am-12pm		**^102 Lecture/Lab** 8am-12pm		
1st Fall	**103 Lecture:** 8-11am	**103 Clinic:** 7a- 3:15 pm	**104 Lecture** 8-11am	**103 Clinic:** 7a- 3:15 pm	**103/104 Lab**: 8a-12pm
1st Intersession		**106 Clinic:** 7am-2:50 pm		**106 Clinic:** 7am-2:50 pm	**106 Lab**: 8a-12pm
1st Spring	**107 Lecture** 8-11am **108 Lecture** 12-3pm	**107 Clinic:** 7a- 3:15 pm	**109 Lecture** 8-11am	**107 Clinic:** 7a- 3:15 pm	**107/108 Lab**: 8a-12pm
2nd Summer	**201 Clinic** 7am-2:50pm	**201 Clinic** 7am-2:50pm	**201 Clinic** 7am-2:50pm	**201 Clinic** 7am-2:50pm	
2nd Fall	**202 Clinic** 7am-315pm	**202 Lecture** 8-11am **204 Lecture** 12-2pm	**202 Clinic** 7am-315pm	***203 Lecture** 8-11am **210 Lecture/ Lab** 12-2pm (1st 8 weeks)	**202 Clinic** 7am-315pm
2nd Intersession	**205 Clinic** 7am-2:50pm		**205 Clinic** 7am-2:50pm		**205 Clinic** 7am-2:50pm
2nd Spring	**207 Clinic** 7am-315pm	**207 Lecture** 8am-11am	**207 Clinic** 7am-315pm	**208 Lecture** 8am-12pm	**207 Clinic** 7am-315pm

- Actual times may vary. Times are rounded and estimated based on board approval of academic calendar, placement of holidays and instructor availability.
- Lecture and Lab scheduled in APL119, ^102 scheduled in Nursing lab
- Clinic scheduled at various preapproved hospital sites.
- * 203 may require State fluoroscopy labs to be completed on Saturdays based on clinical site equipment availability.

PREGNANCY/PREGNANCY LEAVE

Refer to the Radiation Protection Policy

HOLIDAYS

The program observes all college holidays. Students will not be scheduled to attend class, laboratory or clinical when school is not in session, including college holidays and breaks. Dates of holidays and breaks when the program is not in session are published in college academic calendar at www.avc.edu.

RADIATION SAFETY

Refer to the Radiation Safety Policy

CREDIT GRANTING POLICY

Credit shall be given for previous general education according to college policy. Refer to the college catalog for options for transfer or advanced placement for general education courses.

STUDENT DUE PROCESS

A grievance procedure is available to the student as in the college's policies and procedures available in the college website www.avc.edu in the college catalog under Academic Polices or by contacting the program director or Dean of Health Sciences.

ACADEMIC HONESTY

Academic Honesty (cheating) will be handled according to Antelope Valley College Board Policy.

RETURNING STUDENTS

A student enrolled in any radiologic technology course may be allowed to re-enroll in the program twice. Unsuccessful completion or withdrawal from any subsequent course, or failure to progress for any reason, will result in the student not being allowed to continue in the program.

FOR EXAMPLE: *If a student withdraws for personal reasons and re-enrolls, this is **one** re-enrollment. If the student fails the course and re-enrolls, this is the **second** re-enrollment. If the student fails or withdraws from any course for the duration of the program following these two re-enrollments, he/she will not be permitted to continue in the program.*

First semester students must notify the Dean of Health Sciences during the next application period for admission to the Radiologic Technology Program. Second and third semester students must submitted a letter of intent to re-enroll to the Dean of Health Sciences three months prior the semester he/she plans to re-enroll in the program. Returning students are accepted on a first come, first serve basis, contingent of didactic and clinical space availability.

CLINICAL EXPERIENCE

Refer to the Clinical Handbook

TRANSPORTATION

Each student is responsible for his/her own transportation. Some clinical assignments require the student to travel independently to the clinical site. Inability to do so may result in unmet objectives.

EMPLOYMENT

It is recommended that the maximum hours of employment should not exceed half-time, or 20 hours per week.

Students with a cumulative grade point average below 2.5 will not be recommended for employment.

TIPS

It is unethical to accept any sort of gratuity or gift from patients, vendors or employees of the clinical affiliated sites.

SUSPENSION OR DISMISSAL

The following shall be sufficient cause for suspension or dismissal of any student:

1. Cheating
2. Excessive absences as outlined in the course syllabus attendance policy.
3. Repeated failure to notify clinical area of impending absence.
4. Physical or mental illness deemed sufficient to interfere with continuation in the program.
5. Under the influence of chemical substances, i.e., alcohol or drugs, while in the clinical, laboratory or lecture area.
6. Poor professional attitude.
7. Poor application or lack of patient safety.
8. Neglect of duties in assigned clinical areas.
9. Request of the clinical affiliate.
10. Breach of patient confidentiality.
11. Any other reason deemed necessary or sufficient for dismissal by the Health Sciences Division faculty.

The student must maintain a "C" (75%) average in radiologic technology theory and other required courses. The student must maintain a satisfactory grade in laboratory/clinic equivalent to a "C" (75%).

CHANGES IN RECORD DATA

It is essential that the student notify the Health Sciences Program Coordinator of any changes in name, address, telephone number, physician, and person to notify in case of emergency as soon as changes occur. This should continue after graduation from the program in order to maintain a complete up-to-date record of all students and graduates.

VISITING PATIENT WHILE IN UNIFORM

While in uniform and during the school day, students must obey all clinical site rules and regulations, and cooperate to the fullest while visiting patients. Without special permission from the school, no student, while in uniform and during school hours, may visit with a friend, neighbor, or relative who is a patient in the hospital.

When assigned to one patient area, the student may not visit patients in an unassigned area, except when in street clothes and during designated visiting hours - nor may a student remain in the clinical areas, or return to the clinical areas, to visit with formerly assigned patients while wearing the student uniform, without special permission from the Dean of Health Sciences.

PATIENT CONFIDENTIALITY

It is the moral and professional responsibility (or obligation) of the radiologic technologist to **at all times and in all places** keep in absolute and inviolate confidence all information concerning patients.

A student must not read charts or gather information from charts, except for the sole purpose of his/her clinical experience and learning. This information should not be shared with anyone except in those instances when a particular patient's care is discussed for the benefit of the entire group under the direction of the instructor.

ILLNESS/INJURY

A student who becomes ill or injured during the program, upon request of the faculty, will obtain a written statement from the physician clarifying the medical status and ability to continue to participate in the program.

In the event of a student becoming pregnant during her enrollment in the radiologic technology program, it is her immediate responsibility to obtain a letter from her physician stating that it is safe for her to continue without restrictions. A letter from the physician is also required following the delivery, stating she is able to return to class (lab or clinic) without any restrictions.

Pregnancy and the postpartum condition will not be sufficient reason for lack of participation in regular classroom and clinical assignments unless the radiation safety officer of the clinical agency decides as such. The radiation safety officer makes the final decision that is not subject to appeal.

Physiologic and/or psychological evaluation by a physician may be deemed necessary at the discretion of the instructor in order that a student may participate in the program.

PROFESSIONAL CONDUCT/DISRUPTIVE BEHAVIOR

Students will conduct themselves in a respectful and professional manner at all times. Failure to accept corrective feedback from an instructor, or arguing with and challenging an instructor or clinical staff member, are considered unprofessional conduct. Altercations with patients and/or clinical staff members, open conflicts with other students, or displays of ill temper are also considered unprofessional conduct.

Disruptive behavior includes, but is not limited to, any of the following: verbal or physical confrontation, use of profanity, excessively loud voices or shouting while expressing views. Any physical confrontation will subject the student to immediate termination from the program.

Any disruptive behavior or conduct deemed unprofessional by the instructor will result in disciplinary action, up to and including termination from the program.

FACULTY OFFICE HOURS

Office hours for instructors will be posted at the beginning of the semester. Students who have issues to discuss, or who need further clarification or assistance with assignments, must make an appointment to meet with the instructor outside of classroom time. It is inappropriate to stop an instructor during or after class or at the clinical setting to discuss personal or educational issues. Federal law prohibits disclosure of grades or discussion of student progress with anyone other than the student. Students who desire to have their progress discussed with another person (for example: spouse, parent, or friend) will be required to sign a waiver indicating their wishes.

CLASSROOM RULES AND PROCEDURES

1. Punctuality, attentiveness, and courtesy are expected in the classroom.
2. Students not attending class for the day or any part of the day will be marked absence for the time missed from class.
3. Each student is responsible for securing missed lecture notes and assignments.

4. If a student is tardy for lecture start, she/he must enter the classroom quietly, prepared to listen, take notes, and be attentive. Any questions about materials missed must be discussed outside of classroom time with the instructor.
5. If a student is tardy for a test start, s/he must enter the classroom quietly, without distracting noise or comments and may take the quiz, test, or exam within the remaining time period regardless of the amount of time left. For example, if a test starts at 0815 and ends at 0915, and the student arrives at 0845, she/he has until 0915 to take the test as do other students.
6. Students are encouraged not to leave the classroom during lecture, and are prohibited from leaving the classroom during a test or exam. If a student leaves during a quiz, test, or exam it will be assumed that the student has finished and the materials will be collected and graded as is.
7. Use of portable electronic devices during a test, unless authorized by the instructor for use during the test constitutes cheating. Any student who receives or gives help during a test, uses notes or other aids, causes undue disturbance of any kind, or removes test materials from the room will receive disciplinary action up to and including dismissal from the program.
8. Students should keep a record of the results of all quizzes, tests and exams in order to have general knowledge of the grade point average. Students have two weeks following receipt of their exam grade to review the exam and make grade changes, if necessary. After two weeks, the exam grade may not be challenged.
9. Use of portable electronic devices during classroom lectures as a study aid in the classroom will be at the discretion of the course instructor. Use of such devices for personal matters (i.e., answering text messages, taking personal phone calls) during lecture/laboratory is strictly prohibited.
10. Test Format:
    a. Length: In general students are allowed 1 minute per question. Example: If there are 50 questions, test time is 50 minutes. Exams that include essay, short answer and computational questions may be extended at the discretion of the instructor.
    b. No bathroom breaks or eating will be permitted during examinations.
    c. No personal test reviews will be conducted during class time. Students are encouraged to make an appointment with the instructor during office hours to review his/her examination results. The instructor may at his/her discretion review a test with the entire class to reinforce learning if time permits.
    d. Only items allowed on the student's desk during a test include: pencil, calculator, blank scratch paper and water. Any other items left on the student's desk will be considered cheating.
    e. Use of portable electronic devices during a text is not allowed and will be considered cheating.
    f. Any student found cheating or in violation of the Academic Honesty Policy will result in disciplinary action up to and including dismissal from the program.
11. Make-up exams: Will be determined at the instructor's discretion and earliest convenience. Students should refer to the course syllabus to determine if make up tests are given for the course. It is the student's responsibility to contact the instructor for time and place of the exam. Make-up exams will not be given during regularly scheduled class or clinical hours.
12. Written assignments must be handed in on time. Late assignments will have points deducted or be given no credit. Consult the course syllabus for the late assignment penalty. If the student has an excused absence, the assignment must be handed in on the first day back to the classroom or clinical area.

13. Lab/clinical performance is evaluated each semester. A student with two unsatisfactory clinical evaluations in one semester or an unsatisfactory evaluation in the final clinical rotation is considered will receive a maximum grade of "D" for the course. The grade will be recorded as the course grade on the transcript. Students that do not achieve a “C” (75%) or above in any program course will not progress/graduate in the program.
14. All students will be given a written evaluation at midterm and at the end of each clinical rotation for the spring, summer and fall sessions. Each course syllabus has specific clinical objectives.
15. When a student has demonstrated a pattern of unsatisfactory performance, the instructor will arrange a conference with the student. At the conference the instructor will give the student a written summary of the unsatisfactory incidents, along with suggestions to assist the student in improving these behaviors. The student, together with the instructor, will develop a learning contract stating goals to be attained and dates by which the goals must be met. In the event that the goals agreed to in the plan are not met, the student will receive an unsatisfactory evaluation. Students are given individualized assistance in both theory and clinical to be successful in the program. The student must, therefore, be willing to take advantage of additional learning opportunities available in the program.
16. A student may withdraw from the course at any time through the twelfth (12th) week of the semester without penalty, and will receive a "W" on the course transcript. After the twelfth week, a letter grade must be given as stated in the Antelope Valley College Catalog.
17. Due to the overriding concern for patient safety and comfort, a student may be dismissed at any time from the course when the patient's emotional and/or physical safety is consistently placed in jeopardy. In addition, students who are disruptive, argumentative and challenging in a way as to not follow professional conduct may be dismissed from the program.

CLINICAL FACILITIES USED BY THE PROGRAM

Students may be place in the following clinical agencies. All clinical agencies have been approved by the Radiologic Health Branch and the Joint Review Committee on Education in Radiologic Technology.

Antelope Valley Hospital
Palmdale Regional Medical Center
Ridgecrest Regional Hospital

Federal law mandates that some facilities require a background screening check of all employees and other persons involved with patient care. Students must provide this check through *Corporate Screening* at his/her own expense. The application form will be given to the student prior to the first week of class. Results must be received prior to the student entering a facility requiring this check. The results are confidential and are reviewed by the Dean of Health Sciences.

STUDENT RESOURCES

AVC Learning Center offers tutoring for written assignments and studying for exams. Also offers access to computers for downloading and course materials.
The Learning Center is located across from the Library. Telephone number for the main desk is 722-6300 extension 6458.

AVC Library offers access to computers for downloading and copying course materials. The library has print and electronic resources for research. The library also has electronic resources for research available to students on the Library's webpage.

Disabled Student Services offers assessment of students who may qualify for assistance with studying and exams. DSS also prescribes accommodations for students who have physical, mental, or learning disabilities. DSS is located in the Student Services Building. Contact Linda Rose at 722-6300 extension 6360 (TDD Line: 722-6362).

Health Services offers designated immunizations necessary for students to qualify for clinical participation through the Care-A-Van. The Care-A-Van parks behind the Library and is available on Thursdays from 9 am to 1 pm with an appointment. For appointments, call 722-6300 extension 6683.

Instructional Media Center offers the use of Macintosh computers and private study areas for students. The IMC is located between the Learning Center and the Business Education Building. Telephone number is 722-6300 extension 6451.

AVC Bookstore offers textbooks, resource material, and equipment necessary for the course. The bookstore is located in the Student Center building near the cafeteria.

The AVC computer labs are located in the Business Education building, 3rd floor, and on the second floor of the Student Services building. The computer labs offer access to the internet. Printing is limited to 10 copies per day, but students can download materials to their own storage media, such as flash drives. Please refer to the AVC Open Computer Lab Policy which is available on myAVC under the "Academics" tab.

The AVC Counseling Division provides personal counseling (up to three visits per semester) and academic counseling. Students experiencing personal or mental health problems can be referred to outside resources. Students who are transferring courses from another college or university must meet with a counselor to make certain that the courses meet the requirements of the Radiologic Technology program. Counseling is available Monday through Friday, 8:00 am to 4:30 pm. Students can walk-in and wait for a counselor to be available. The counselors are located on the first floor of the Student Services Building. The telephone number is 722-6300 extension 6338.

Financial Aid Office is located on the first floor of the Student Services Building. The office has information about scholarships, loans, grants, and special financial programs for allied health students. Telephone number is 722-6300 extension 6337.

Job Placement Center is located on the first floor of the Student Services Building. The JPC posts information about jobs on campus for student workers and jobs in the community. The JPC can assist with such items as completing a job application and writing a resume. The JPC telephone number is 722-6300 extension 6358.

The College participates in several programs to help students in specific circumstances. CalWORKS/GAIN program assists individuals who are transitioning to the work force. Contact 722-6300 extension 6326 for eligibility requirements. The EOPS Office assists first-time college students whose family does not have a history of college attendance. Its office telephone number is 722-6300 extension 6363. The STAR Program helps students with mentoring to increase student success. Contact the program at 722-6300 extension 6084.

For help using myAVC (the college's online information portal) and/or the college's course content management system, contact the myAVC help desk at 722-6300 extension 6605.

Antelope Valley College- Radiologic Technology Program
Joint Review Committee on Education in Radiologic Technology
JRCERT Standards for Students

Accreditation Standards
Antelope Valley College maintains the standards published by the Joint Review Committee on Education in Radiologic Technology (JRCERT). The following contains excerpts (*italicized*) of the JRCERT standards and an overview of how AVC maintains each standard.

Standard One: Intergrity
The program demonstrates integrity in the following: representations to communities of interest and the public, pursuit of fair and equitable academic practices, and treatment of, and respect for, students, faculty, and staff.

The program adheres to high ethical standards in its representations and treatment of faculty, students, staff and communities of interest. The program adheres to the college policy and practice of nondiscrimination, due process and compliance with both regional and programmatic accreditation standards. This is demonstrated through the college's nondiscriminatory hiring practices, grievance procedures and maintenance of Western Association of Schools and Colleges (WASC) and JRCERT accreditation standards.

Standard Two: Resources
The program has sufficient resources to support the quality and effectiveness of the educational process.

The program's administrative structure supports student learning. The program maintains JRCERT and State recognition of all clinical education settings and provides classroom and laboratory facilities to achieve its mission. The program provides access to student services and learning resources in support of student learning. The program is funded through a combination of federal and state grants and district funding. The program is compliant with obligations for Title IV federal funding.

Standard Three: Curriculum and Academic Practices
The program's curriculum and academic practices prepare students for professional practice.

The program publishes a mission and goal statement on the college's website and in the programs information sheet hand out. The program's Advisory Board developed the mission and goals of the program. The program's Advisory Board includes members of the radiologic technology community, such as local technologists, students, college faculty and administration, and clinical affiliates. The Advisory Board reviews and modifies, if necessary, the program's mission and goals on an annual basis. The program's master plan of education follows the American Society of Radiologic Technologists (ASRT) competency based curriculum accepted by the JRCERT for student learning in radiologic technology. The program provides equitable learning opportunities that promote professional ethics, continued professional development, and critical thinking and problem solving skills. The program ensures adequate length and credit hours for the subject matter taught. The program clearly defines the responsibilities of faculty and clinical staff and evaluates faculty and clinical instructors on a regularly.

Standard Four: Health and Safety
The program's policies and procedures promote the health, safety, and optimal use of

radiation for students, patients, and the general public.

The program publishes its Radiation Protection policy in compliance with federal and state radiation protection laws. Parts of the Radiation Protection Policy are published in the Program Handbook and Radiation Protection Policy. The program's policies on student clinical orientation and supervision are published in the Program Handbook.

Standard Five: Assessment
The program develops and implements a system of planning and evaluation of student learning and program effectiveness outcomes in support of its mission.

In order to measure the effectiveness of the program, or how well the program meets its mission and goals; the program has developed an assessment plan. The assessment plan was developed by the program director with input from the program's Advisory Board and faculty. The advisory board reviews and modifies, if necessary, the program's assessment plan on an annual basis. The assessment plan includes Students Learning Outcomes (SLO's) and Program Learning Outcomes (PLO's) published on the college's website.

Standard Six: Institutional/Programmatic Data
The program complies with JRCERT policies, procedures, and STANDARDS to achieve and maintain specialized accreditation.

The program maintains JRCERT and State recognition of all clinical education settings and provides classroom and laboratory facilities approved by the State to achieve its mission. The program provides faculty and staff with appropriate qualifications for their assignments. The college maintains institutional accreditation with the Western Association of Schools and Colleges.

Reporting Mechanism for Noncompliance
Allegations of noncompliance with the above standards shall follow Administrative Procedure 5530, listed in the College Catalog under Student Due Process. If the Student is unable to resolve the complaint through the College's due process procedures, he or she may submit the allegations of non-compliance directly to the JRCERT.

All documents concerning the allegation, responses and resolutions will be maintained in the JRCERT Standards Allegations Notebook, located in the Program Director's office.

For more information on the JRCERT and the Standards, please refer to the JRCERT contact information below:

Joint Review Committee on Education in Radiologic Technology
20 North Wacker Drive, Suite 2850
Chicago, IL 60606-3182
(312) 704-5300
www.jrcert.org

ANTELOPE VALLEY COLLEGE

Radiologic Technology Program

Clinical Handbook

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CLINICAL EXPERIENCE

INTRODUCTION

The Clinical Handbook has been developed to supplement the Policy Handbook and assist Radiologic Technology students in understanding the rules and regulations that will apply during their practicum (clinical education) assignments. Students will be required to adjust their personal and work schedules in order to comply with program standards and schedules. Clinical hours will not be adjusted for outside work schedules. The Radiologic Technology program will be very busy and demanding, but very rewarding. Success is expected.

CLINICAL EDUCATION HOURS (PRACTICUM)

Clinical education hours will vary according to the class schedules and availability of clinical education settings. STUDENTS ARE REQUIRED to make themselves aware of the assigned hours and adjust personal and work schedules to coincide with their clinical schedule, as posted by the Program Director. Attendance policies are defined in the Policy Handbook. **No more than a total of forty hours of clinical and didactic education combined per week and no more than ten clinical hours per day will be scheduled.**

1. No student is to have clinical experience in the clinical education setting without the prior written approval of the Program Director. The student is not to return to or remain in the clinical area for experience outside the assigned clinical hours.

2. Evening and/or weekend hours may be required of all students in the clinical area.

3. A current American Heart CPR Card (BCLS) is required when working in the hospital. American Red Cross CPR Card is not acceptable.

4. Students are counseled regarding clinical performance. They are given specific criteria on what areas they must improve. Clinical goals are established with specific time frames in which they are to be met.

5. Students should not bring any electronic portable devices to clinical. Students may give the clinical department phone number to emergency contacts for ***emergency*** use only. If a cell phone must be available to the student for emergency purposes, they should remain off while participating in clinical actives and may be used only during schedule breaks in designated areas of the hospital/clinic.

6. Students must be in complete uniform as described in the Program Handbook while at the clinical site, laboratory classes or fieldtrips. Failure to wear the AVC uniform is a breach of the dress code. Any student who is found to be out of compliance with the dress code will be dismissed from clinical/laboratory/fieldtrip until the student can satisfactorily maintain uniform compliance.

CLINICAL AFFILIATED SITE ORIENTATION

Students in Clinical Practicum are required by the clinical site to complete an orientation to the facility. These orientations may be held at the clinical site and at the discretion of the facility. Orientation meetings and/or materials are provided by the clinical site and may include a "live" orientation or self-study orientation material. Students will complete the clinical site orientation prior to the first clinical assignment. Students will be notified and assigned to a clinical site orientation by the Program Director or the Clinical Instructor.

RADIATION MONITORING

Students must wear personal dosimeters (radiation monitors) to monitor radiation doses. Students will ALWAYS wear the radiation-monitoring badge while in clinical practicum. Students are responsible for exchanging dosimeter badges at the beginning of each month. Failure to exchange the badge by the 10th of the month will affect clinical grades and incur a $35 fee. The fee will be applied to your school account. In addition, failure to wear the dosimeter badge or exchange the badge at the beginning of each month will result in the student being dismissed from clinical practicum until the badge is secured or exchanged.

Records of the monthly radiation exposure will be kept in the Program Director's office. It is the students' responsibility to review the report. The program director and/or RSO will monitor the report of excessive dosage and counsel any student who receives such a dose. In addition, the student may be required to provide a written account of any excessive dosage received to the dosimeter badge.

Tampering with one's own or another person's dosimeter badge is an ethical and practice violation and will result in disciplinary action up to and including dismissal from the program. In addition, a notification will be made to the State of California, Radiologic Health Branch and the American Registry of Radiologic Technologists ethics committee.

For additional information please refer to the Radiation Protection policy.

ANATOMIC SIDE MARKERS

Students will supply and use their own-initialed right and left anatomic markers to properly identify the radiographic procedures they perform. AVC recommends that students always keep a second (full set) of markers in case one or both in a set are lost. A student without markers in clinical education is out of dress code. The use of another person's or non- personalized anatomic side identification markers is forbidden. Students who arrive to clinical without their initialed anatomic side markers will be considered out of uniform and will be dismissed from clinical until their initialed anatomic side markers are obtained.

CONFIDENTIAL INFORMATION

All clinical affiliate patient records are confidential in nature. Requests for information concerning a patient should be referred to the clinical instructor or designate. The students are expected to maintain absolute confidentiality of all data involving the patient and the practicum affiliate. Use of confidential information for any purposes other than patient care and/or education constitutes Breech of Patient Confidentiality. Any Breech of Patient Confidentiality will result in disciplinary action up to and including dismissal

from the program. All students will attend HIPPA training prior to starting clinical rotations.

RADIOLOGY LABORATORY SAFETY RULES

1. Radiation monitoring device must be worn at all times while in the radiology department or laboratory at collar level outside the lead apron.
2. X-rays will be made only of the x-ray phantom, and at no time will they be made on fellow students or other persons.
3. All persons must be behind protective walls or outside the room during an exposure.
4. The door must be closed whenever an exposure is made.
5. Proper collimation must be used at all times.
6. Proper exposure factors and image receptor size should be used at all times.
7. In case of equipment failure notify the lab or clinical instructor immediately.
8. Use of x-ray or control room allowed only under direct supervision of a qualified practitioner (CRT or ARRT technologist).
9. In case of fire turn power off, leave room immediately and notify proper authorities.
10. Authorized personnel only will use and/or work on machines.
11. Instructor or Program Director must be informed immediately if any infraction of the above rules occurs. Failure to do so will result in disciplinary action up to and including dismissal from the program.

SUPERVISION OF STUDENTS

Direct supervision – a Registered Technologist (CRT /ARRT) must be present in the room directly observing the students actions.

Indirect supervision – a Registered Technologist (CRT /ARRT) must be immediately available to the student within the same building, i.e. the adjacent room.

First year students (students enrolled prior to RADT201) will be under **direct supervision** during the performance of any examinations or exposures, regardless of competency status.

Second year students (enrolled during RADT201 or beyond) will be under indirect supervision, **except** during repeat exposures, operating room assignments, procedures in which the student has not passed ARRT Competency or at the direction of the supervising technologist and/or clinical instructor.

NOTE: While under indirect or direct supervision within any category all repeat procedures MUST be accomplished under the direct supervision of the Clinical Instructor or Registered Technologist and logged on the Repeat Log sheet.

CLINICAL COMPETENCIES AND REQUIREMENTS

Each student shall perform or assist in the performance of not less than the following number of radiographic procedures throughout his or her clinical experience in the program:

Procedures	Number
(1) Chest	200
(2) Bony skeleton	400
(3) Gastrointestinal and genitourinary	200
(4) Vascular and contrast studies	50
(5) Special studies and X-ray imaging modalities	50
(6) Bedside	50
(7) Surgical	50

The above procedures and totals are required in order to graduate from the program. Students will document performance of radiographic procedures on the Procedures Log to demonstrate compliance throughout the program. Students are encouraged to take every opportunity to practice skills and procedures. These procedures MUST be documented and verified in order to count towards the totals above.

DOCUMENTATION OF CLINICAL EXPERIENCE

All students will document clinical experiences on the appropriate clinical log forms. Each log entry must be initialed by the qualified practitioner that directly/indirectly supervised or observed the student. The following forms are approved by the Radiologic Health Branch to be used for documentation of clinical experience. No other forms will be accepted:

- Clinical observation log– for observations only, the student did not perform or participate in the performance of the examination
- Procedure logs- live examinations in which the student performed or assisted in performing the procedure
- Repeat log- examinations in which the student repeated an image
- Venipuncture log- live venipuncture performance (minimum of 10 required on live humans)

Copies of blank logs are located on the colleges online content management system for each clinical course. Students are responsible to bring their own copies of forms into clinical. Students are not allowed to make copies at the clinical sites. Students are also responsible to make and maintain copies of all completed forms for their own records. Forms must be filled out in their entirety before a student will receive credit. The program keeps students records for five years after graduation, dismissal or withdrawal from the program. It is also recommended that students keep their own copies of all program records for at least five years after graduation.

GENERAL PROCEDURE FOR COMPETENCY EVALUATIONS

Students will document completion of clinical competencies required by the American Registry of Radiologic Technologists (ARRT). Copies of demonstration and competency forms are located on the colleges online content management system for each clinical course. Students are responsible to bring their own copies of forms into lab/clinical. Students are not allowed to make copies at the clinical sites. Students are also responsible to make and maintain copies of all completed forms for their own records. Forms must be filled out in their entirety before a student will receive credit.

The following procedures will be used to demonstrate competency for each procedure listed in the course syllabus for each clinical course.

1. In the classroom (didactic) section for each clinical course (refer to course syllabus) students will attend a laboratory demonstration for each procedure listed in each category.
2. Students will then be required to demonstrate basic competency of the procedure to the instructor on the demonstration form.
3. Once a student achieves basic competency, a student is then required to complete a number of practices, either “live” or simulated in the category. The number of practices may be assigned or the student may proceed with practices until he/she feels confident in performance of the procedure. These practices must be directly observed and verified by initialing on the procedures log by a technologist or clinical instructor.
4. Once practices have been completed, at the discretion of the Clinical Instructor, a student may proceed with competency performance for that procedure. Only qualified practitioner may observe (directly) and evaluate the competency for a student.
5. The Clinical Instructor will determine the “readiness” of a student to proceed with the Competency. If a student is not progressing as expected, the Clinical Instructor may, at his/her discretion, assign more practices to a student.
6. If a student achieves below 75% for any competency, the clinical instructor will assign additional practices. After the assigned practices are complete the student must then re- demonstrate (simulated) to the clinical instructor before attempting competency again. If the student fails the same competency a second time, s/he will be referred to the Program Director for remediation counseling and a determination will be made concerning the students continuance in the program.
7. Any student who has failed three competencies on the first attempt will be referred to the Program Director for remediation counseling and a determination will be made concerning the students continuance in the program.
8. Successful completion of an evaluation satisfies the skill requirement in that category. However, students are expected to maintain adequate performance standards throughout the program and will be continually re-evaluated on an informal basis.
9. A minimum number of competencies will be assignment each clinical course as a part of the course objectives to ensure minimal clinical progression of the student (refer to the course syllabus) throughout the program. However, a student may perform more than the required number of competencies for each clinical course if she or he is ready.

CRITERIA FOR COMPETENCY EVALUATION

POSITIONING EVALUATION- Student demonstrates the below standards during the actual performance of the procedure.
IMAGE CRITIQUE: Student demonstrates a critique of the below standards from radiographs of the procedure.

Approach to patient

- Identification of patients name and DOB
- Identification and verification (chart or prescription) of procedure(s) to be performed
- Asks patient for clinical history appropriate for examination.
- Verification if patient is properly prepared for examination
- Identify that there are no contraindications for performing procedure
- Maintain patient dignity and modesty through proper gowning and covering for the patient
- Selects appropriate patient transport
- Speak to patient in a concerned and professional manner
- Provide appropriate and clear instructions to patient

Room Preparation

- Identify that equipment is operational
- Provide a clean and orderly work area
- Obtain appropriate supplies for examination
- Select appropriate IR (type, size and orientation) grids, beam restrictors, etc

Proper technique

- Appropriate selection of technical factors -Measures patient
- Refers to technique chart/APR
- Appropriate compensations for patient size, age, condition and pathology
- Selects correct image receptor, grid, SID, OID, focal spot for adequate detail

Radiation protection

- Pregnancy evaluation if applicable
- Optimum kVp
- Use of gonadal shielding
- Use of lead apron, gloves and blockers
- Appropriate exposure factors (ALARA), see proper technique also
- No repeats

Patient positioning

- Transportation of patient on and off table
- Apply universal precautions as appropriate
- Position patient with consideration of patient care
- Provide proper patient instructions for moving, positioning and breathing
- Check patient condition at regular intervals
- Proper maneuvering of x-ray tube/table/IR utilizing appropriate controls and locks
- Determine appropriate image receptor placement (table top/bucky)
- Anatomy demonstrated on radiograph in appropriate position or projection
- Perform procedure/s in logical sequence in consideration of patient care
- Perform examination in a reasonable period of time consistent with patient care

Central ray

- Correct centering to the area of clinical interest
- Tube and Part centering to IR
- Correct central ray (tube) angle

Collimation

- Evidence of collimation
- Collimation to the area of clinical interest
- Collimation to the size of the film or smaller

Anatomic markers

- Appropriate use of makers as demonstrated on image at the time of exposure
- Does not interfere with anatomy demonstrated

Student can identify radiographic anatomy

- Identification of anatomical structures
- Identification of technical factors effecting demonstration of anatomy

Paper work is completed correctly

- Properly complete all logs and forms
- Properly complete patient record in chart/radiology information system/PACS

CLINICAL EVALUATION

Students will have one or more clinical evaluations performed by the Clinical Instructor or Program Director for each clinical course (RADT103, 106, 107, 201, 202, 205, 207). Students must pass each clinical evaluation with 75% or better in order to pass the course and proceed in the program.

The criterion for the Clinical Evaluation is posted in the course syllabus for each clinical course and includes the following:

1. Minimum number of required clinical hours attended
2. Minimum number of simulated demonstrations
3. Minimum number of ARRT (elective or mandatory) competencies completed
4. Minimum number of image evaluations
5. Minimum number of State required procedures completed
6. Minimum number of technologist evaluations completed
7. Clinical Instructor evaluation of student's progress

COMPETENCY AND CLINICAL EVALUATION DUE PROCESS POLICY

In the event an unfavorable evaluation is received and disputed, the following procedure shall be followed:

1. The student shall first discuss with the Clinical Instructor the reasons for the dispute.
2. If the student does not feel the issue has been resolved, the student shall meet with the Program Director.
3. The Program Director shall meet with the Clinical Instructor if warranted to discuss the evaluation.
4. The student, Program Director and Clinical Instructor shall jointly review the evaluation.
5. After discussion, the student may request that the Clinical Instructor and Program Director jointly perform a re-evaluation.
6. In the event of a re-evaluation, that evaluation will supersede the original.

All evaluations and re-evaluations will become part of the student's clinical record.

RADIATION PROTECTION POLICY

ANTELOPE VALLEY COLLEGE

RSO: TBA

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ANTELOPE VALLEY COLLEGE
RADIOLOGIC TECHNOLOGY PROGRAM

ADMINISTRATIVE POLICIES AND PROCEDURES

Subject: **RADIATION PROTECTION POLICY**	**POLICY:** **ALARA/RADIATION PROTECTION**
SUBMITTED BY: Maria Kelly, RT (R) (CT) (CRT)	**ORIGINATION DATE:** April 2008
APPROVAL: TBA; RSO	**REVISION DATE: 5/1/14**
SIGNATURES:	

Review dates:	2/1/10	1/31/11	1/12/12		1/15/13	1/21/14	

RADIATION PROTECTION POLICY

ALARA Principle:

ALARA is an acronym formed from the phrase “As Low As Reasonably Achievable.”
The phrase refers to a principle of keeping radiation doses as low as can be achieved, based on technological and economic considerations.

The ALARA program is reviewed on an annual basis by the Radiation Safety Office (RSO) and/or program director. Meeting minutes of the annual program review will be maintained for a period of five years in the program director’s office.

Biological Basis: The biological basis for radiation protection assumes a conservative estimate of radiation dose versus effect, termed “linear hypothesis” or “non-threshold dose response.” This hypothesis asserts that any dose, no matter how small, may inflict some degree of detriment. This detriment takes the form of a postulated risk of cancer and genetic damage. The risks already exist in the absence of radiation, but could be increased by exposure to ionizing radiation.

Applied Practices: ALARA principles are commitments to safety by all parties involved in the use radiation at all clinical sites and/or energized laboratories and include a wide range of easily applied practices.

Operational Dose: A supplementary element of ALARA principles is a set of operational dose limits, called ALARA investigational levels. Investigational levels should not be confused with dose limits which must be strictly adhered to for meeting regulatory compliance. Instead, doses exceeding ALARA

investigational levels should alert the Radiation Safety Officer, technical staff, clinical coordinators and the Program Director, that a review may be needed in an attempt to identify better radiation protection practices.

Cumulative Dose: In addition to maintaining doses as low as is reasonably achievable for individuals, the sum of the doses received by all exposed individuals (cumulative dose) should also be the lowest practicable.

Radiation Safety Officer

The Radiation Safety Officer enforces the ALARA program through management and technical supervision of the radiological staff and students.

Radiation Safety officer's duties include:

- Serve as the Radiation Safety Officer for Antelope Valley Community College's Radiology Technology Program.
- Providing technical support, guidance and, when necessary, instructional methods of implementing ALARA principles.
- Evaluate the radiation safety program annually.
- Providing input into facility design to comply with regulations and guidelines.
- Reviewing QC/QA policies and procedures, physicist surveys and inspection reports, and preventative maintenance reports to ensure that appropriate parameters are met and problems are corrected.
- Reviews dosimeter reports quarterly and, in addition, at the request of the Program Director, who shall review dosimeter reports monthly.
- Reviews occupational exposures with particular attention to exposures exceeding the ALARA investigation levels.
- Provides worker training/instruction and consultation.
- Provides input to the Radiation Safety Committees of those clinical sites affiliated with the college.
- Assumes responsibility for compliance with all state and federal regulations pertaining to radiation protection within the diagnostic x-ray range.
- Serves on the Radiologic Technology Program's Advisory Board

ALARA Principles for Mitigating External Radiation Hazards

The following methods can often be a practical and effective means of minimizing exposure to radiation.

- Time: Reduction of time of exposure directly reduces radiation exposure.

- Distance: Increasing the distance between you and the radiation source will reduce exposure by the square of the distance.

- Shielding: Shielding a radiation source can effectively reduce radiation exposure to diagnostic x-ray sources.

RADIATION SAFETY

Pursuant to California Radiation Control Regulations, the owner/registrant is responsible for radiation safety and for assuring that only competent persons operate the x-ray machines under his or her directions. The registrant must establish rules for radiation safety and require that each user demonstrate familiarity with the rules.

A glossary of terms related to radiation technology and radiation safety appears at the end of this policy. All students should familiarize themselves with the terms.

1. The x-ray room shall be cleared of all non-essential individuals prior to making an x-ray exposure. During exposures, the operator shall stand behind a protective lead barrier.
2. No individual occupational exposed to radiation shall be permitted to hold patients or equipment during exposures, nor shall any individual be regularly used for this purpose. Operating personnel shall not hold patients or equipment except very infrequently and then only in cases in which no other method is available. Any individual who holds patients or equipment during exposures, or who remains in the x-ray room during exposures, must wear lead protective gloves and aprons having a lead equivalent of not less than 0.25 millimeters.
3. The useful beam shall be restricted to the area of clinical interest. Close collimation of the primary beam greatly reduces patient/operator exposure. Whenever possible, a clear, unexposed border should be visible at the edges of the x-ray images.
4. Personnel monitoring devices (dosimetry badges) must be provided to any occupationally exposed individual who is likely to receive a dose in excess of 500 millirems in a year. Badges must be worn on the collar, above the lead apron.
5. Exposures in the student demonstration laboratory on the college campus shall only be made on phantoms (no live persons or animals).
6. Lead protective aprons should be hung up when not in use; under no circumstances should they be folded. Repeated folding will cause stress cracks in the leaded rubber and shortens the life of the apron.

7. The operator must adhere to the rules for radiation safety. Any apparent malfunction of the x-ray equipment must be reported immediately to the person responsible for radiation safety.
8. X-ray equipment calibration and maintenance shall be performed by the vendor service engineer. Radiation equipment and output safety inspections shall be performed by a qualified physicist.
9. Radiation safety equipment and devices will be inspected on an annual basis.
10. The x-ray room must be provided with primary barriers in all areas struck by the useful beam.
11. Gonadal shielding shall be provided in patients of childbearing age or younger, whenever its use will not interfere with diagnostic information.
12. Radiological controls (entry and exit controls, posting and disposal of equipment) are maintained and verified by the owner/registrant at the affiliated sites. For the college campus, posting areas in the student demonstration laboratory (RT lab) are inside the control area. Only authorized persons, who have received appropriate training on radiation safety and the college's radiation protection policy, are allowed in the RT lab. RT students must be accompanied by a program instructor (ARRT/CRT) at all times while in the lab. Personnel who need to enter the RT lab for cleaning/maintenance will be accompanied by a program instructor or receive instruction on radiation safety prior to entering the RT lab. At no time will cleaning personnel clean the x-ray/lab equipment or exposure consoles. The Radiologic Health Branch shall be notified using the appropriate forms for disposal of x-ray equipment.
13. The need for area monitoring shall be evaluated and documented by the owner/registrant.
14. Each clinical affiliated site (CAS) allows the program to view it's radiation protection program as requested by the college. Students/instructors are made aware of the location of the CASs' radiation protection programs and other required postings during orientation to the site.]
15. Minors (less than 18 years old) are generally not admitted into the Radiologic Technology Program due to perquisite requirements. However, in the unlikely event that a minor meets admission requirements, such individual/s while in the program and/or until s/he reaches the age of eighteen, will be subject to radiation dose limits per the NRC regulations (10 CFR), Part 20.1207, Occupational Dose Limits for Minors, which is "10% of the annual dose limits specified for adult workers" (from http://www.nrc.gov/reading-rm/doc-collections/cfr/part020/part020-1207.html).

Protecting the Patient

Gonadal shielding: Gonadal shielding shall be used on patients of reproductive age or younger, whenever the gonads are within the useful beam and/or within 5 centimeters of the useful beam, and when the use of gonadal shielding will not interfere with diagnostic information.

All gonadal shields shall have a minimum lead equivalency of at least 0.5 mm of lead.

When examining patients of reproductive age or younger in the upright position, a half apron should be used to protect the reproductive organs.

Collimation: Close collimation of the primary beam to the area of clinical interest shall be observed. Under no circumstances shall the collimator be opened beyond the size of the image receptor.

Compensating filters: When performing scoliosis series and/or upright spines, lead protective filters and lucite compensating filters shall be used to protect the breast tissue as well as the reproductive organs when the use of such will not interfere with the diagnostic quality of the film.

High Speed Image Receptors: The use of high speed image receptors will greatly reduce exposure to the patients.

Optimal Kilovoltage Technique: The use of optimal kVp techniques allow for adequate penetration of the part with reduced milliamperage seconds, thereby reducing exposure to the patient.

Radiation safety training in regards to occupational and non-occupational workers will be reviewed with students throughout the program in both didactic and clinical experience.

DOSIMETRY PROGRAM

The monitoring period for dosimetry reports is one month. Dosimetry Service is provided by Landauer Inc. A control badge is used to verify any background or other exposure to the dosimetry badge lot. The control badge is maintained in the program director's office and exchanged with each monthly lot of dosimetry badges.

Students are required to wear the dosimetry badge at the collar level or otherwise as directed by the clinical instructor or clinical supervisor while in clinical. Students are required to store their dosimetry badge at their assigned clinical facility in the designated location when not in use and exchange the badge monthly when directed. Misuse of or tampering with any dosimetry badge is grounds for immediate dismissal from the RT program.

The program director will assume the primary responsibility of reviewing dosimetry reports on a monthly basis. The RSO will review dosimetry reports on a quarterly basis and at the request of the program director.

Dosimetry reports will be available for students to review in the office of the program director, located in the Applied Arts Building, room 121- E for a period of 5 years. Student will be notified when the reports are available each month and are encouraged to review their report.

The program director will notify and counsel any student whose dosimetry reading is above 50 mrem in any one monitoring period or any occurrences that may affect radiation protection and safety. The program director and student will discuss any potential causes and remedies for such readings/occurrences and if deemed necessary a meeting with the RSO will be arranged. Reviews will be documented on the Dosimetry Report Review/ ALARA Occurrence Form and signed by the student and program director. Such forms will be maintained in the program director's office for a period of 5 years.

ALARA Exposure Investigation Levels/ California Requirements

There are two types of ALARA investigation levels for external occupational exposure as determined by personal dosimeters.

Calendar Month: The first is related to the measured dose during any calendar month.

Monthly Investigation Levels
(10 % of the annual limit for occupational radiation exposure)

Dose Quantity	Investigation Level for Exposure During any Calendar Month
Whole Body Deep Dose	500 mrem
Lens of the Eye	1,500 mrem
Shallow or Extremity Dose	5,000 mrem

Year to Date: The second investigation level is tied to an individual's year-to-date (YTD) cumulative exposure in millirem.

Calendar Quarter	Dates	% of Annual Limit	YTD Deep Dose	Lens of Eye	Shallow or Extremity
1 and 2	Jan-June	20%	1,000	3,000	10,000
3	July-Sept	40%	2,000	6,000	20,000
4	Oct-Dec	60%	3,000	9,000	30,000

Notification/Monitoring

If an individual's exposure exceeds the investigation level, a notification letter is sent to the Radiologic Health Branch and their occupational exposures are closely monitored for the remainder of the calendar year. If a pattern of high exposure persists, then the Radiation Safety Officer meets with the individual, the clinical instructors, supervising technologist, and Program Director to discuss methods of limiting occupational exposure. See the below procedure for Notification.

Notification of Overexposure

In addition, The California Department of Public Health, Radiologic Health Branch must be notified when individuals are exposed to radiation in excess of the limits listed below within one monitoring period. Immediate notification is required if an individual has received:
A total effective dose equivalent of 25 rems (0.25 Sv) or more or
An eye dose equivalent to 75 rems (0.75 Sv) or more or
A swallow-dose equivalent to the skin or extremities of 250 rads (2.5Gy) or more.

Immediate notification means a prompt reporting by telephone (916) 327-5106 and confirmation by letter to:

State of California Department of Public Health
Radiologic Health Branch
Mail Stop 7610
P.O. Box 997474
Sacramento, CA 95899-7414

The Program Director is required to investigate the conditions under which the overexposure occurred, and report the findings to the Radiologic Health Branch within 30 days. Any investigation documentation will be maintained for a period of five years in the program director's office.

Dosimetry Report Review/ ALARA Occurrence Form

Student Name:_____Date: _____

Dosimetry reporting period: _____

Dosimetry reading/occurrence:_____

_____

****

Student Description of Events:

_____

_____

_____

_____

_____

Program Director's Comments/Corrective Action:

_____

_____

_____

_____

_____

Radiation Safety Officer's Comments/Corrective Action (if indicated):

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_____ _____ _____

RSO/ Print Name Signature Date

_____ _____ _____

Program Director/ Print Name Signature Date

_____ _____

Student Signature Date

ANTELOPE VALLEY COLLEGE

Radiologic Technology Program

Dosimetry Service Information for Students

Radiation

Radiation is all around us, but we cannot see it, hear it or feel it. Radiation comes from many sources including the sun, the earth and even ourselves. This is called natural radiation. Man- made radiation can include such sources as nuclear power and medical radiation. There are both risks and benefits from radiation. We need radiation to live, and yet too much radiation can be harmful to us. There is no threshold below which radiation is known to be completely safe, therefore radiation workers engage in certain practices that limit unnecessary radiation exposure.

Radiation Monitoring

Due to the potential exposure to man made radiation inherent in the field of radiologic technology, RT students are subject to the same requirements as occupational radiation workers. You will learn about these requirements, called regulations, and learn how to protect yourself, your patients and others from unnecessary radiation during the course of your classroom and clinical training. One of these requirements is radiation monitoring. Radiation monitoring measures the type and amount of radiation workers may have been exposed to during their work. You will also learn why it is important to monitor radiation exposure as a sound radiation safety practice.

Dosimetry Devices and Services

Radiation workers use radiation monitoring devices to measure radiation exposure levels, also called dosimetry devices. There are several types of dosimetry devices available. The type of dosimetry device used in this program is called a Optically Stimulated Luminescence device (OSL). An OSL is a device that measures radiation exposure to the radiation worker using phosphor technology. A OSL is held in a small plastic holder that can be clipped onto the wearers clothing. If the badge is exposed to radiation, it causes the phosphor within the badge to be exposed. The badge is then sent for “reading” (processing) to a company called a dosimetry service to “read” the exposure on the badge. A report is generated that lists the exposure in mrems, a unit of radiation exposure.

The college utilizes a dosimetry service to provide dosimetry badges, reading and reporting for exposure levels. These are required to be tracked and may

become apart of the radiation worker's (including exposure as a student) permanent record.

The program director and/or RSO will review exposure levels of students and faculty each month and review any abnormalities with the student. Exposure levels over 50 mrems in one monitoring period may warrant a review of radiation safety practices with the student. In addition, extremely high exposure levels, as listed above, in the **ALARA Exposure Investigation Levels,** will warrant a formal investigation and reporting to appropriate regulatory agencies.

College Requirements Concerning Dosimetry Badges

1. Dosimetry Badges must be worn at all times during clinical and lab.
2. Dosimetry badge should be worn at the collar level, outside of the lead apron.
3. Dosimetry badges will be exchanged on a monthly basis.
4. The Dosimetry badge is the property of the dosimetry service.
5. Dosimetry badge reports are available for students to review in the office of the program director. Reports are provided monthly. An announcement will be made when reports are available.
6. Dosimetry badges are NOT to leave the facility/lab area, unless directed by your instructor. If you mistakenly take the badge home, bring it back immediately (to ensure any exposure to the badge has occurred only during occupational activities).
    a. Do not leave the badge in a car. Heat may affect the badge.
    b. Do not launder the badge. Water may affect the badge.
    c. Do not lose the badge.
    d. If any of the above occurs, notify the program director immediately, so the dosimetry service can be notified.
7. Dosimetry badges should never be taken apart.
8. Dosimetry badges must not be "shared". Students can only wear his/her own badge.
9. Misuse or tampering of any dosimetry badge resulting in additional exposure or other damage is grounds for immediate dismissal from the clinical site and the program. In addition, a report will be made to the California Department of Public Health, Radiation Health Branch and the America Registry of Radiology Technologists, ethics committee.

For additional Information, please visit these websites.

http://www.landauer.com – Landauer Inc.

http://www.nrc.gov/reading-rm/doc-collections/nuregs/brochures/br0322/br0322.pdf - Nuclear Regulatory Commission (NRC)

PREGNANCY/PREGNANCY LEAVE

Pregnancy is not considered a disability. Female students in the program who become pregnant may voluntarily notify the director in writing as to their pregnancy and the estimated date of delivery. They must provide a doctor's note confirming the pregnancy. **The student may also choose not to declare the pregnancy.** A student who declares her pregnancy while in the program has the following options:

a. Declare the pregnancy in writing (see form at the end of the policy) and continue in unmodified clinical rotations.
b. Declare the pregnancy in writing and request a modification of the clinical rotations to avoid fluoroscopy and portable rotations.
c. Declare the pregnancy in writing; continue in the didactic portion only. This option is available only to students who are passing at the time of declaring the option and the hours must be completed before the student can progress to the next course. A student who declares this option receives a grade of "Incomplete" in the course as per the college policy.
d. Declare the pregnancy in writing and take a leave of absence from the program completely and return when the gestation period and recovery is over.
e. May withdraw declaration of pregnancy in writing at any time.

A fetal dosimetry badge will be ordered for any declared pregnancy. The fetal badge must be worn at the pregnant student's front waist under the lead apron. The fetal badge should be worn in addition to the student's badge worn at the collar (not in replace of). The monitoring frequency and documentation of the fetal badge will be in accordance with the Radiation Protection Program.

If the student chooses option b, c, or d, any clinical or didactic training missed must be made up before a certificate of completion is issued. The student will be given the option to make up clinical training in a manner agreed upon by the student, instructor, the program director, and the dean of health sciences. The student will not be required to be in clinical training more than 40 hours per week. Didactic work will be made up by arrangement with each instructor and the program director's and dean's approvals. The student most likely will not complete the program within the normal two-year time frame.

The student should use the form letter obtainable from the Health Sciences Program Coordinator or in the Radiation Protection Policy to indicate which option is chosen. The student may change to a different option as the pregnancy progresses, but this must be communicated by submitting another letter in writing to the program director. For example, if the student chooses option 1 at the beginning of the pregnancy and then

changes in the 6th month of pregnancy to option 3, a letter must be submitted both times indicating the options chosen. All clinical and didactic training must be completed before a certificate is issued.

Reference: NCRP Regulatory Guide 8:13; 10 CFR 20.1208

Antelope Valley College
Radiologic Technology Program

Form Letter for Declaring Pregnancy

This form letter is provided for your convenience. To make your written declaration of pregnancy, you may fill out the blanks in this form letter, or you may write your own letter.

DECLARATION OF PREGNANCY

To: Radiation Safety Officer

In accordance with the NRC's regulations at 10 CFR 20.1208, "Dose to an Embryo/Fetus," I am declaring that I am pregnant. I believe I became pregnant in

_____(only the month and year need be provided).

I understand the radiation dose to my embryo/fetus during my entire pregnancy will not be allowed to exceed 0.5 rem (5 millisievert) (unless that dose has already been exceeded between the time of conception and submitting this letter). I also understand that meeting the lower dose limit may require a change in job or job responsibilities during my pregnancy.

_____
(Your signature)

_____
(Your name printed)

_____
(Date)

GLOSSARY OF RADIATION PROTECTION TERMS

Absorbed dose means the energy imparted by ionizing radiation per unit mass of irradiated material. The units of absorbed dose are the rad and the gray (Gy).

ALARA (acronym for "as low as is reasonably achievable") means making every reasonable effort to maintain exposures to radiation as far below the dose limits in this part as is practical consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in relation to state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relations to utilization of nuclear energy and licensed materials in the public interest.

Background radiation means radiation from cosmic sources; naturally occurring radioactive material, including radon (except as a decay product of source or special nuclear material); and global fallout as it exists in the environment from the testing of nuclear explosive devices or from past nuclear accidents such as Chernobyl that contribute to background radiation and are not under the control of the licensee. "Background radiation" does not include radiation from source.

Department means the Department of Energy established by the Department of Energy Organization Act (Pub. L. 95-91, 91 State. 565, 42 U.S.C. 7101 et seq.) to the extent that the Department, or its duly authorized representatives, exercises functions formerly vested in the U.S. Atomic Energy Commission, its Chairman, members, officers, and components and transferred to the U.S. Energy Research and Development Administration and to the Administrator thereof pursuant to sections 104 (b), (c), and (d) of the Energy Reorganization Act of 1974 (Pub. L. 93-438, 88 Stat. 1233 at 1237, 42 U.S.C. 5814) and retransferred to the Secretary of Energy pursuant to section 301(a) of the Department of Energy Organization that the detectable concentration of a radionuclide is statistically different from the background concentration of that radionuclide in the vicinity of the site or, in the case of structures, in similar materials using adequate measurement.

Dose or radiation dose is a generic term that means absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, or total effective dose equivalent, as defined in other paragraphs of this section.

Dose equivalent ($H_{T)}$ means the product of the absorbed dose in tissue, quality factor, and all other necessary modifying factors at the location of interest. The units of dose equivalent are the rem and sievert (Sv).

Dosimetry processor means an individual or organization that processes and evaluates individual monitoring equipment in order to determine the radiation dose delivered to the equipment.

Effective dose equivalent (H_E) is the sum of the products of the dose equivalent to the organ or tissue (H_T) and the weighting factors (W_T) applicable to each of the body organs or tissues that are irradiated ($H_E = \sum W_T H_T$).

Embryo/fetus means the developing human organism from conception until the time of birth.

Entrance or access point means any location through which an individual could gain access to radiation areas or to radioactive materials. This includes entry or exit portals of sufficient size to permit human entry, irrespective of their intended use.

Exposure means being exposed to ionizing radiation or to radioactive material.

External dose means that portion of the dose equivalent received from radiation sources outside the body.

Licensee means the holder of a license.

Member of the public means any individual except when that individual is receiving an occupational dose.

Minor means an individual less than 18 years of age.

Monitoring (radiation monitoring, radiation protection monitoring) means the measurement of radiation levels, concentrations, surface area concentrations or quantities of radioactive material and the use of the results of these measurements to evaluate potential exposures and doses.

Nonstochastic effect means health effects, the severity of which varies with the dose and for which a threshold is believed to exist. Radiation-induced cataract formation is an example of a nonstochastic effect (also called a deterministic effect). Another example would be Acute Radiation Syndrom.

NRC means the Nuclear Regulatory Commission or its duly authorized representatives.

Occupational dose means the dose received by an individual in the course of employment in which the individual's assigned duties involve exposure to radiation or to radioactive material from licensed and unlicensed sources of radiation, whether in the possession of the licensee or other person. Occupational dose does not include does received from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material and released under § 35.75, from voluntary participation in medical research programs, or as a member of the public.

Person means
(1) Any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, Government agency other than the Commission or the Department of Energy (except that the Department shall be considered a person within the meaning of the regulations in 10 CFR chapter I to the extent that its facilities and activities are subject to the licensing and related regulatory authority of the Commission under section 202 of the Energy Reorganization Act of 1974 (88 Stat. 1244), the Uranium Mill Tailings Radiation Control Act of 1978 (92 Stat. 3021), the Nuclear Waste Policy Act of 1982 (96 Stat. 2201), and section 3(b) (2) of the Low-Level Radioactive Waste Policy Amendments Act of 1985 (99 Stat. 1842), any State or any political subdivision of or any political entity within a State, any foreign government or nation or

any polical subdivision of any such government or nation, or other entity; and member of the public. (2) Any legal successor, representative, agent, or agency for the foregoing.

Planned special exposure means an infrequent exposure to radiation, separate from and
in addition to annual dose limits.

Public dose means the dose received by a member of the public from exposure to radiation and to radioactive materials released by a licensee, or to another source of radiation either within a licensee's controlled area or in unrestricted areas. It does not include occupational dose or doses received from background radiation, or as a patient from medical practices, or from voluntary participation in medical research programs.

Quality Factor (Q) means the modifying factor that is used to derive dose equivalent from absorbed dose.

Quantitative fit test (QNFT) means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Quarter means a period of time equal to one-fourth of the year observed by the licensee (approximately 13 consecutive weeks), providing that the beginning of the first quarter in a year coincides with the starting date of the year and that no day is omitted or duplicated in consecutive quarters.

Radiation (ionizing radiation) means alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions. Radiation, as used in this part, does not include non-ionizing radiation, such as radio or microwaves, or visible, infrared, or ultraviolet light.

Radiation area means an area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.005 rem (0.05 mSV) or 5 millirems in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.

Restricted area means an area, access to which is limited by the licensee for the purpose of protecting individuals against undue risks from exposure to radiation and radioactive materials. Restricted area does not include areas used as residential quarters, but separate rooms in a residential building may be set apart as a restricted area.

Shallow-dose equivalent (Hs), which applies to the external exposure of the skin of the whole body or the skin of an extremity, is taken as the dose equivalent at a tissue depth of 0.007 centimeter (7 mg/cm squared) averaged over an area of 1 square centimeter.

Stochastic effects means the likelihood of certain effects occurring is proportional to the dose, but the severity is unrelated to dose. Their effects are random and unpredictable. The effects of low doses of radiation from diagnostic x-rays procedures over a period of time are **stochastic effects,** examples are cancers and or birth defects.

Whole body means, for purposes of external exposure, head, trunk (including male gonads), arms above the elbow, or legs.

Year means the period of time beginning in January used to determine compliance with the provisions of this part. The licensee may change the starting date of the year used to determine compliance by the licensee provided that the change is made at the beginning of the year and that no day is omitted or duplicated in consecutive years.