Medical Radiography Technology

Quality Assurance and Control

COURSE INFORMATION

COURSE NUMBER	QUAL 370
TOTAL HOURS	50
THEORY	50
PRACTICAL	0
PREREQUISITES	ANPH 252 - Anatomy and Pathology 2 MRAD 202 - Patient Care 2 MRAD 240 - Specialized Imaging 1 MRAD 251 - Computed Tomography Theory 1 MRAD 254 - Fluoroscopic Imaging MRAD 256 - Radiographic Technique 2 MRAD 358 - Clinical Integration 1 PRCT 353 - Clinical Placement I
CO-REQUISITES	None
ACADEMIC UNIT RESPONSIBLE FOR COURSE	Allied Health Education

STUDENTS, PLEASE NOTE

This course contains information that may be required to substantiate learning for professional recognition. It is your responsibility to retain a copy for your own use during your program and after graduation.

COURSE DESCRIPTION

Quality Assurance and Control provides an introduction to quality control tests for radiographic equipment and the development and maintenance of a quality assurance program. The values of resource management and quality assurance in the diagnostic imaging department will also be discussed. By combining hands-on training in the clinical setting with online learning, students can benefit from a more flexible learning experience.

COURSE OBJECTIVES

Following completion, the student will be able to:

1. Describe the principles of resource management.
    - 1.1 Differentiate between a capital and an operating budget.
    - 1.2 Identify the ways in which different radiology examinations may affect budgets.
    - 1.3 Optimize patient scheduling.
    - 1.4 Describe the monitoring of inventory of supplies and materials.
    - 1.5 Identify the factors that affect workflow.
    - 1.6 Prioritize resources based on the factors that affect workflow.

2. Explain activities that support a quality assurance (QA) program.
    - 2.1 Explain the concept of process improvement through continuous quality management.
    - 2.2 Explain how problem identification and analysis can improve departmental policies.
    - 2.3 Identify the appropriate method to collect, store, and share quality assurance data.
    - 2.4 Explain how the Workplace Hazardous Materials Information System (WHMIS) is implemented in an imaging department.
    - 2.5 Discuss the performance of an imaging department as it relates to a quality assurance program.

3. Evaluate the standard performance of a radiographic unit according to Safety Code 35 requirements.
    - 3.1 Identify the Safety Code 35 recommendations for an X-ray tube and generator.
    - 3.2 List the equipment used for testing a tube and generator.
    - 3.3 Describe the procedures for testing an X-ray tube and generator function.
    - 3.4 Evaluate the results of an X-ray tube and generator.
    - 3.5 Identify the testing frequency required for each X-ray tube and generator test.
    - 3.6 Describe the best method to initiate corrective actions for an X-ray tube and generator.

4. Evaluate the performance of the accessory equipment according to Safety Code 35 requirements.
    - 4.1 Identify the Safety Code 35 safety recommendations for radiographic accessory equipment.
    - 4.2 List the equipment used in each quality control procedure of accessory equipment.
    - 4.3 Describe the procedures for testing specified aspects of equipment and accessories.
    - 4.4 Evaluate results of accessory equipment tests.
    - 4.5 Identify the testing frequency required for accessory equipment tests.
    - 4.6 Evaluate the integrity of the lead apparel.

4.7 Describe the best method to initiate corrective actions for each piece of accessory equipment.

5. Evaluate the fluoroscopic performance of an X-ray room according to Safety Code 35 requirements.
   5.1 Identify the Safety Code 35 recommendations for fluoroscopic equipment.
   5.2 List the equipment used to test fluoroscopy equipment.
   5.3 Describe the procedures for testing fluoroscopy equipment.
   5.4 Evaluate the results of fluoroscopic equipment test.
   5.5 Identify the testing frequency required for fluoroscopic equipment tests.
   5.6 Describe the best method to initiate corrective actions for fluoroscopic equipment.

6. Evaluate the performance of a computed radiographic (CR) system according to Safety Code 35 requirements.
   6.1 Identify the equipment required to test the performance of a CR system.
   6.2 Describe the tests that should be performed on a CR system.
   6.3 Evaluate the results of CR tests.
   6.4 Identify the testing frequency required for each CR test.
   6.5 Describe the best method to initiate corrective actions for a CR system.

7. Evaluate the performance of a direct radiography (DR) system according to Safety Code 35 requirements.
   7.1 Identify the equipment required to test the performance of a DR system.
   7.2 Describe the tests that should be performed on a DR system.
   7.3 Evaluate the results of DR tests.
   7.4 Identify the testing frequency required for each DR test.
   7.5 Describe the best method to initiate corrective actions for a DR system.

8. Evaluate the performance of a mammography system according to Safety Code 36 requirements.
   8.1 Identify the equipment required to test the performance of a mammography system.
   8.2 Describe the tests that should be performed on a mammography system.
   8.3 Evaluate the results of mammography system tests.
   8.4 Identify the testing frequency required for each mammography system test.
   8.5 Describe the best method to initiate corrective actions for a mammography system.

9. Evaluate the performance of adjunct modalities in the diagnostic imaging department.
   9.1 List the tests performed on the digital networking and archival system.
   9.2 Identify the Safety Code 35 recommendations that correlate to the equipment being tested.
   9.3 Describe the procedures for testing specified aspects of adjunct modality equipment and accessories.
   9.4 Evaluate the results of adjunct modality tests.
   9.5 Describe the best method to initiate corrective actions for adjunct modalities.

COMMON STUDENT LEARNING OUTCOMES

Upon successful completion of Anderson College programs, the student will:

Learn

Students will actively and independently acquire, apply, and adapt skills and knowledge to develop expertise and a broader understanding of the world as lifelong learners.

Think

Students will think analytically and creatively to explore ideas, make connections, draw conclusions, and solve problems.

Communicate

Students will exchange ideas and information with clarity and originality in multiple contexts.

Integrate

Students will demonstrate proficiency in the use of technologies in the broadest sense related to their field of study.

Act

Students will act purposefully, reflectively, and respectfully in diverse and complex environments.

EVALUATION

COLLEGE GRADING SYSTEM

Students must achieve a minimum of 70 % in theory and assignment portions within the course to be successful.

Students who achieve a failing grade of less than 70% may be eligible to write a supplemental examination to gain course credit. Remedial assistance will be required prior to writing the supplemental examination. Students will not progress in the program without achieving a passing grade in the course.

COURSE EVALUATION

Quizzes (2)	40%
Discussion Board (2)	30%
Final Exam	30%
TOTAL	100%

ASSESSMENT RATIONALE/ CRITERIA

Achievement of learning outcomes will be assessed through class participation, class work, group activity, assignment, tests, project, mid-semester examination, and end of semester examination. Assessment will require students to demonstrate understanding and application of all the topics taught.

LEARNING MATERIALS

REQUIRED TEXTS

Lavie, C. & Martel, N. (Eds). (2008). **Safety Code 35**: Safety Procedures for the Installation, Use and Control of x-Ray Equipment in Large Medical Radiological Facilities (HC Publication: 4000). Retrieved from: http://www.hc-sc.gc.ca/ewhsemt/pubs/radiation/safety-code_35-securite/index-eng.php

Papp, J. (Last Published). Quality Management in the Imaging Sciences (Current ed.). St. Louis, MO: Mosby Elsevier.

SUGGESTED READINGS

To be determined by the instructor.

REFERENCE TEXTS AND MATERIALS

To be determined by the instructor.

TEACHING/LEARNING STRATEGIES

Lectures on all the topics, power point presentations, video presentations, classwork, assignments, groupwork. All the students are expected to familiarise themselves with foundational knowledge prior to class. Personal study before and after classes and use of online resources are essential.

COLLEGE POLICY STATEMENTS

Refer to the Anderson College Student Handbook for more information on the following policies.

ACADEMIC RESPONSIBILITY – STUDENTS

1. Each student must know the due dates for assignments, tests, and examinations.
2. Each student must maintain their own academic record of work covered each Unit/term.
3. Each student must maintain paper and electronic copies of assignments for the academic year.
4. Each student must arrange academic discussion time with a faculty member to discuss progress.
5. Each student must perform self-evaluation on progress in the course.

PERSONAL CONDUCT – STUDENTS

1. Students must arrive on time for class and be prepared to work when the instructor begins.
2. Students must be courteous to faculty and classmates.
3. Eating in classrooms and clinic is not allowed.
4. Cell phones, Text messengers and other electronic devices must be turned off during class time.

ACADEMIC ADVANCEMENT

At mid-point and at the end of each academic term, the members of the Faculty Team (FT) for the Medical Radiography Technology program meet to review the progress of all students. Following these meetings each student is advised orally and in writing of their status in the program.

Students experiencing difficulty will be counseled regarding assistance available to foster academic success.

At the end of each term, the Medical Radiography Technology Program Instructor and or Director of Education will make recommendations after deliberating on all relevant information. Decisions regarding each student may include (but are not limited to) the following. S/he has:

- Successfully completed all program requirements and can graduate.
- Successfully completed all requirements and is promoted to the next academic level in the program.
- Been granted supplemental privileges for courses not successfully completed and if successful will graduate or be promoted to the next academic level. **Supplemental privileges are not automatically granted and will be limited in number.**
- Not successfully completed all elements in the academic level but may remain in the program to repeat failed portions and continue toward program completion according to an individualized timetable.
- Experienced such difficulty that repetition of the entire academic level is required, and a space will be provided for the student in the program at the earliest opportunity if the student wants to return.
- Experienced such difficulty that the student is asked to leave the school and if s/he desires readmission must complete the admissions process in competition with other applicants.

ATTENDANCE

Attendance is mandatory – The College reserves the right to determine whether absences are excused or unexcused (may affect student funding) and to request any medical evidence that may be required. Student tardiness is unacceptable, and students are expected to demonstrate professional behaviour at all times, in class or on a clinical placement. Students are entirely responsible for catching up on their own or for missed material and demonstrations. A doctor's note may be requested for each absence.

Absence from Missed Test/Assignment Due Protocol

Upon return to school, the student is to provide a doctor's note or approved excusable absence to the instructor prior to admission to the make-up test/submission of late assignments. Failure to submit an approved excuse within 5 school Units upon return, the student will receive a zero for all missed, tests and late assignments.

Absence from Class Protocol

The College monitors attendance closely. A student who is absent from a class more than 3 times in a term, will be identified at risk and required to submit a doctor's note or approved excusable absence to their instructor(s) and the Program Instructor prior to readmission to the class.

Make-Up Procedure

All students are expected to take exams at the scheduled time. Make-up exams will be arranged only in recognized emergency cases. The instructor must be informed before or during the exam, to be eligible. Refer to the Anderson College Student Handbook for protocols. Quizzes are taken in class and at the time specified by the instructor. Late students will be given no extra time for the quiz. Quizzes given in the classroom cannot be made-up.

CHEATING AND PLAGIARISM

Any evidence of cheating will result in a failure for the course. Evidence of plagiarism will result in a failure for all students involved in the plagiarism. Plagiarism is turning in the work of someone else as if it was your own. When working on assignments in a group setting, students must submit their assignments using their own words. Identically worded assignments submitted by multiple students are acts of plagiarism.

MOBILE PHONES

Mobile phones are to be turned completely OFF while class is in session. Please use laptop computers responsibly. Web browsing, messaging, emailing, and recording are otherwise prohibited during class. Students who abuse the privilege of using their laptops will be asked to put it away for the duration of the class.