Medical Radiologic Technology

PLAR (Prior Learning Assessment and Recognition)

Candidate Guide
Acknowledgements

Adapted with permission from SIAST (Saskatchewan Institute of Applied Sciences and Technology)

The Medical Radiological Technology is dedicated to removing barriers and broadening the access to programs at NAIT. NAIT recognizes that knowledge and skills are gained through a variety of processes including life and work experiences that may align with courses within our programs. We are committed to supporting a community in which learners will receive appropriate credit or recognition for prior learning.

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<thead>
<tr>
<th>Developed by program</th>
<th>November 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revised</td>
<td>December 2014</td>
</tr>
<tr>
<td>Web ready – RPL office</td>
<td>January 14, 2015 (SB)</td>
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Why consider a PLAR assessment?

Recognition of Prior Learning (RPL) refers to the combination of flexible ways of evaluating peoples’ lifelong learning, both formal and informal against a set of established standards. You can receive academic credit for your relevant lifelong learning. The Medical Radiological Technology)" program recognizes prior learning in a number of ways.

We recognize:

- Previous formal learning from a recognized post-secondary institution through transfer of credit and credential recognition.
- Previous non-formal and in-formal learning through a comprehensive prior learning assessment and recognition process (PLAR).

What are the PLAR options?

To be eligible for PLAR, an applicant must have first applied and have been accepted to a NAIT credit program (the non-refundable tuition deposit has been paid). Open Studies students are not eligible to apply for PLAR. Please note that your PLAR request will be reviewed within 6 weeks of receipt of the PLAR application form, all supporting documents (in English) and verification of fee payment. Submit your PLAR request early!

Individual Course Challenge

If you have a minimum 600 hours successful experience in the radiography field which may include a clinical portion of a program that has a radiography or diagnostic imaging component and have learned the skills and knowledge for one or more of the Medical Radiological Technology courses, you may apply to be assessed for each applicable course. Please note that NAIT has a 50% residency criterion. Applicants can only receive credit for up to 50% of any NAIT credit program (See NAIT Academic Regulations and Procedures under Residence Requirements). Students should enrol in their courses until official confirmation has been received that credit was granted.

Fees:

- The PLAR evaluation fee is $150.00 per course challenge.
- The course assessment fees must be paid prior to submitting a PLAR request.
- All fees are non-refundable.
- Call NAIT and ask to speak to an Advising Centre Representative at 780-471-6248 or Toll Free at 1-877-333-6248 or AskNAIT@nait.ca
How many courses can be challenged through PLAR in the Medical Radiological Technology program?

Currently we have 02 out of 15 diploma courses with PLAR challenges available. Credit is granted per course – partial credit will not be granted. Please note that NAIT has a 50% residency criterion. Applicants can only receive credit for up to 50% of any NAIT credit program. (See NAIT Academic Regulations and Procedures under Residence Requirements)

Is PLAR available at any time of the year?

Contact the program at 780-471-7036 or mrt@nait.ca for more details. Your request will be reviewed within 6 weeks of receipt of the request form, all supporting documents (in English) and verification of fee payment. Submit your PLAR request early!

**Please Note:** You should enrol in your courses until official confirmation has been received that credit was granted. The program sends an email notification that the application has been processed.

**It is the student’s responsibility to:**
- Contact the program area with any questions or concerns related to the assessment results. [Appeal process](#) available.
- Notify the program if they have decided to decline a course credit that has been granted. Any changes must be requested before the [add/drop deadline](#).
Which courses are PLAR ready?

<table>
<thead>
<tr>
<th>COURSE CODE</th>
<th>COURSE NAME</th>
<th>PLAR Challenge(s) available through program</th>
<th>PLAR Challenge(s) not available</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSCH1100</td>
<td>Research in Healthcare</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>MRAD1161</td>
<td>Radiographic Imaging of the Chest and Abdomen</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>MRAD1170</td>
<td>Patient Management and Legislated Safety I</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>RADI1130</td>
<td>Image Acquisition and Quality Management</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>RADI1160</td>
<td>Radiographic Imaging of the Appendicular Skeleton</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>IPHE1201</td>
<td>Interprofessional Healthcare Education</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>MRAD1230</td>
<td>Specialized Imaging Units and Quality Management Program</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>MRAD1260</td>
<td>Radiographic Imaging of the Axial Skeleton</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>MRAD1270</td>
<td>Specialized Radiographic Imaging</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>MRAD1290</td>
<td>Clinical Applications I</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>MRAD1390</td>
<td>Clinical Applications II</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

*Note* No Level 2 courses are available for PLAR at the present time.

For assistance contact NAIT and ask to speak to an Advising Centre Representative at 780-471-6248 (Toll Free: 1-877-333-6248) or askNAIT@nait.ca
Is it easier to challenge a course through PLAR – OR – take the course?

Neither is easier. By using PLAR you may reduce the repetition of studying information that you already know. The PLAR process allows you to demonstrate knowledge you already have.

PLAR is not an easy way to certification, rather a “different” way to obtain certification. Your personal level of skill and experience will dictate which courses you choose to challenge. The self-audit section found later in this guide will help you to decide if you have a good match of skill and knowledge for a specific course.

Methods of assessing prior learning

Assessment methods measure an individual’s learning against course learning outcomes. The assessment methods listed below are the ones most commonly used, but other forms of flexible assessment may be considered. These assessments may include one or a combination of the following assessment tools:

- Product validation and assessment
- Challenge exam
- Standardized tests
- Performance evaluations (including skill demonstrations, role plays, clinical applications, case studies)
- Interviews and oral exams
- Equivalency (evaluations of learning from non-credit training providers)
- Evidence or personal documentation files (providing evidence of learning from life and work experiences and accomplishments)

If I live out of town, do I have to travel to the NAIT main campus to do PLAR?

Depending on the mode of assessment, there may be times that you will need to meet with the program on campus. However, we will try to keep travel to a minimum.
What services or resources can I access if I have a disability?

Identify any possible needs related to your disability during your PLAR Audit meeting with the program. If you have a disability and want to know more about what services or resources you may be able to access for your PLAR assessment, please contact Services for Students with Disabilities.

Are there other methods to gain NAIT course credits for prior learning?

Transfer Credit and Credential Recognition

Yes, NAIT may grant credit for previous post-secondary training from a recognized institution that is similar in content, objectives, and evaluation standards to NAIT training. Transfer of credit is different from the PLAR process. Transfer credit and credential recognition guidelines may be found at:
http://www.nait.ca/86612.htm

Please Note: This process should be completed prior to your PLAR challenge. If these credits cannot be used for transfer credit or credential recognition, you may be able to use these accredited courses as part of your evidence for your PLAR challenge.

If more information is required, please contact:
- A NAIT Advising Centre Representative at 780-471-6248 (Toll Free: 1-877-333-6248) or email AskNAIT@nait.ca
- Program Advanced Credit contact (www.nait.ca under programs & courses and contacts)

What are the implications of receiving PLAR or Transfer Credit for my full time student status?

While RPL can mean fewer classes to take and pay for, students should be aware that the definition of full-time status for Financial Aid may be different than NAIT’s definition of full-time status. Questions regarding financial assistance should be directed to the NAIT Financial Aid Office. A student who qualifies for advanced credit should review the NAIT Academic Regulations and Procedures, Academic Honors and if necessary, seek further consultation with Advising or Program staff since eligibility for semester honors, Dean's Honor Roll, an honors diploma/certificate or awards may be affected.
The PLAR Process

Prior Learning Assessment & Recognition (PLAR) Process

PLAR is the process of identifying, assessing, and recognizing skills and knowledge acquired through non-formal and informal learning for a specific goal such as advanced credit.

1. Research NAIT programs/Select program
   - Contact 780-471-6248 or toll free at 1 877 338 6248 or email Advising@nait.ca & talk with an Advising Centre Representative

2. Apply to NAIT program
   - See www.nait.ca/admissions for application information

3. Consult with Advising Centre Representative or RPI Coordinator
   - Identify goals
   - Discuss PLAR process checklist & forms
   - Identify courses for challenge
   - Meet with Financial Aid Specialist to discuss funding options/implications of credit received

4. Acceptance to Program/Prepare for PLAR
   - Pay Tuition Deposit/Enrollment courses
   - Complete Self Audit(s) and book PLAR Audit meeting with program
   - Participate in PLAR Audit meeting with Program Leader/Exempt to review self audit and determine eligibility
   - Obtain approval for PLAR (If not eligible: Stop here and enroll in courses if not already enrolled)
   - Develop action plan with Program Expert for each PLAR course challenge

5. Request for PLAR submitted
   - Follow action plan
   - Fill out PLAR Request form
   - Pay PLAR Assessment fees
   - Send PLAR request form and all necessary documents to Program Leader (or designate) for assessment

6. PLAR Assessment
   - Participate in PLAR challenge assessment(s) facilitated by assessor
   - PLAR challenge assessment(s) evaluated by assessor

7. Candidate notified of results
   - Successful: Notification sent, view credit granted on MyNAIT Portal
   - Not successful: Notification sent, appeal process available

Revised January 5, 2015
Guiding principles for developing a PLAR evidence file

1. As you begin the PLAR process you will be advised if any evidence is required. This will be identified in your action plan. Check with the PLAR designated contact (see program home page Advanced Credit Contact) for your program before you begin to gather evidence.
2. Evidence must be valid and relevant. Your evidence must match the learning outcomes identified for each course.
   - It is your responsibility to create, collect and compile relevant evidence – if required.
3. Learning must be current within the last 5 years.
4. The evidence should demonstrate the skills and knowledge from your experiences.
5. The learning must have both a theoretical and practical component.

Types of evidence

There are three types of evidence used to support your PLAR request:

1. Direct evidence – what you can demonstrate for yourself.
2. Indirect evidence – what others say or observe about you.

Ensure that you provide full evidence to your [Medical Radiological Technology Program] PLAR assessor so that your prior learning application is assessed appropriately. Well organized, easy to track evidence will also ensure that none of the evidence is missed or assessed incorrectly.

Here are some examples of evidence that you may be requested to submit as part of your evidence file (if required):

- workplace validations
- program validations

All documents that are submitted to NAIT may be returned to the student after the final results have been given and the advanced credit appeal deadline of 10 days has passed. A copy of transcripts and certificates may be included in your evidence file, but original transcripts that were submitted at the time of application to NAIT will be available online. Be prepared to show original parchments at the PLAR audit meeting for validation.
How long will it take to prepare evidence for PLAR?

Since the requirements are different for each course, and each candidate has different experiences, the amount of time it takes to prepare your evidence will vary.

Steps to complete a self-audit

1. Read through the levels of competence as listed below.

<table>
<thead>
<tr>
<th>Mastery:</th>
<th>I am able to demonstrate the learning outcome well enough to teach it to someone else.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competent:</td>
<td>I can work independently to apply the learning outcome.</td>
</tr>
<tr>
<td>Functional:</td>
<td>I need some assistance in using the outcome.</td>
</tr>
<tr>
<td>Learning:</td>
<td>I am developing skills and knowledge for this area.</td>
</tr>
<tr>
<td>None:</td>
<td>I have no experience with the outcome.</td>
</tr>
</tbody>
</table>

**Learning outcomes**
For each learning outcome listed, please self-evaluate your competency levels and record in the appropriate column for each self-audit.

2. Take a few minutes and read through the following self-audit for each course you are interested in as a PLAR candidate.

3. Check your level of competence as you read through each of the learning outcomes for each course. The information will help you in your decision to continue with your PLAR application.

4. In order to be successful in a PLAR assessment, your abilities must be at the competent or mastery level for the majority of the learning outcomes (at least 80%). Some things to consider when determining your level of competence are:

   - How do I currently use this outcome?
   - What previous training have I had in this outcome: workshops, courses, on-the-job?
   - What personal development or volunteer experience do I have in this area?

   Be prepared to explain the reason you chose this level if asked by an assessor.

5. Bring the completed self-audit to a consultation meeting with the program head or faculty member in Step 4 – of The PLAR Process for prior learning assessment. Select Program Advanced Credit Contact (PLAR) to book consultation.
# RADI 1160 Radiographic Imaging of the Appendicular Skeleton

Students learn radiographic positioning techniques of the appendicular skeleton in a laboratory setting. Radiographic images will be produced using anthropomorphic phantoms. Students will critique radiographic images which include identifying soft tissues, skeletal structures and recognizing pathologies associated with the long bones and joints.

**Credit unit(s):** 4.50  
**Equivalent course(s):**  
**Prerequisite(s):** (MRAD1170, RADI1130)

### Mastery: I am able to demonstrate it well enough to teach it to someone else.

<table>
<thead>
<tr>
<th>1. Produce radiographic images of the upper limb</th>
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<tbody>
<tr>
<td>2. Identify bony anatomy of the upper limb</td>
</tr>
<tr>
<td>3. Critique radiographic images of the upper limb</td>
</tr>
<tr>
<td>4. Produce radiographic images of the shoulder girdle.</td>
</tr>
<tr>
<td>5. Identify bony anatomy of the shoulder girdle</td>
</tr>
<tr>
<td>6. Critique radiographic images of shoulder girdle</td>
</tr>
<tr>
<td>7. Produce radiographic images of the lower limb.</td>
</tr>
<tr>
<td>8. Identify bony anatomy of the lower limb.</td>
</tr>
<tr>
<td>9. Critique radiographic images of lower limb</td>
</tr>
<tr>
<td>10. Produce radiographic images of the pelvic girdle.</td>
</tr>
<tr>
<td>11. Identify bony anatomy of the pelvic girdle.</td>
</tr>
<tr>
<td>12. Critique radiographic images of pelvic girdle</td>
</tr>
<tr>
<td>13. Differentiate and explain pathologies of the appendicular skeleton visualized on radiographic images of the upper limb.</td>
</tr>
</tbody>
</table>

### Competent: I can work independently to apply the outcome.

### Functional: I need some assistance in using the outcome.

### Learning: I am developing skills and knowledge for this area.

### None: I have no experience with the outcome.
<table>
<thead>
<tr>
<th>RADI 1160</th>
<th>Radiographic Imaging of the Appendicular Skeleton</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mastery:</strong></td>
<td>I am able to demonstrate it well enough to teach it to someone else.</td>
</tr>
<tr>
<td><strong>Competent:</strong></td>
<td>I can work independently to apply the outcome.</td>
</tr>
<tr>
<td><strong>Functional:</strong></td>
<td>I need some assistance in using the outcome.</td>
</tr>
<tr>
<td><strong>Learning:</strong></td>
<td>I am developing skills and knowledge for this area.</td>
</tr>
<tr>
<td><strong>None:</strong></td>
<td>I have no experience with the outcome.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Mastery</th>
<th>Competent</th>
<th>Functional</th>
<th>Learning</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.</td>
<td>Differentiate and explain pathologies of the appendicular skeleton visualized on radiographic images of the <strong>shoulder girdle</strong></td>
<td></td>
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<td></td>
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<tr>
<td>15.</td>
<td>Differentiate and explain pathologies of the appendicular skeleton visualized on radiographic images of the <strong>lower limb</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>16.</td>
<td>Differentiate and explain pathologies of the appendicular skeleton visualized on radiographic images of the <strong>pelvic girdle</strong></td>
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</tbody>
</table>
PLAR assessment methods

If you qualify for PLAR, you may be asked to demonstrate your learning in one or more of the following ways. Be prepared to discuss the expectations during a consultation meeting.

Challenge exam

Candidate will be required to pass a 1.5 hour examination with a minimum grade of 60% (C-) achieved in both the theory and practical components of the challenge exam. Please note: Prior to the Practical Demonstration, a 30 minute orientation to the equipment will be provided. This will result in a total of a 2 hour time commitment by the candidate.

- **Theory Assessment- 1 hour**
  The theory assessment will be a combination of multiple choice and short answer theory questions. The questions will be covering the theory for all 5 learning outcome from the course.

- **Practical Demonstration- 30 minutes**
  The candidate will perform 2 separate demonstrations:
  - Demonstration 1: **Upper extremity and Shoulder Girdle.**
  - Demonstration 2: **Lower Extremity and Pelvic Girdle.**
  - Each demonstration will be given a maximum time of 15 minutes to perform.

Resources

RADI 1130 Image Acquisition and Quality Management
Students learn the principles, operation, and quality control testing of x-ray generating equipment and image acquisition modalities. Laboratory sessions will provide students experience with using radiographic imaging systems and quality control test tools.

Credit unit(s): 3.00  
Equivalent course(s):  
Co-requisite(s): MRAD1170

<table>
<thead>
<tr>
<th>Mastery: I am able to demonstrate it well enough to teach it to someone else.</th>
<th>Competent: I can work independently to apply the outcome.</th>
<th>Functional: I need some assistance in using the outcome.</th>
<th>Learning: I am developing skills and knowledge for this area.</th>
<th>None: I have no experience with the outcome.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Describe the principles of image acquisition.</td>
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</tr>
<tr>
<td>• Describe the imaging process</td>
<td></td>
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<tr>
<td>• Describe the properties of radiation and how they relate to the production of medical images</td>
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<tr>
<td>• Describe the properties of digital image</td>
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<tr>
<td>2. Evaluate radiographic image quality.</td>
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<tr>
<td>• Describe the technological factors that contribute to image quality</td>
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<td></td>
<td></td>
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<tr>
<td>• Describe the patient factors that affect image quality</td>
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<td></td>
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<tr>
<td>3. Operate radiographic equipment and manipulate radiographic image parameters</td>
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<tr>
<td>• Describe the application of grids</td>
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<tr>
<td>• Describe anatomically programmed radiography and automatic exposure control</td>
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<tr>
<td>• post-processing digital image manipulation</td>
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<tr>
<td>• Identify technical and patient factors causing image artifacts and the corresponding corrective action</td>
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<tr>
<td>4. Assess quality control criteria on radiographic equipment.</td>
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<tr>
<td>• Describe generator and x-ray tube function</td>
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<td></td>
</tr>
<tr>
<td>• Identify and describe ancillary equipment: collimator and image acquisition system</td>
<td></td>
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</tbody>
</table>
PLAR assessment methods

If you qualify for PLAR, you may be asked to demonstrate your learning in one or more of the following ways. Be prepared to discuss the expectations during a consultation meeting.

Challenge exam
Candidate will be required to pass a 1.5 hour examination and achieve 60 % or higher to be successful in the RADI 1130 challenge exam. The theory assessment and the practical assessment marks will be blended for an overall mark. The Challenge Exam for RADI 1130 will consist of two components.

1. Theory Assessment-(See learning outcomes)
2. Practical Demonstration- Quality Control

The weighting on the assessment is defined below.

1. Theory Assessment: 80% of total mark.
2. Practical Assessment: 20% of total mark

Completion Requirements:

Theory Assessment

The theory assessment will be a combination of multiple choice and short answer theory questions. The questions will be covering the theory for all 4 learning outcomes from the course.

Practical Demonstration

- The following pages contain the quality control test that may be used to assess the practical portion of the challenge exam.
- The candidate will perform 2 of the following quality control tests. The test will be randomly chosen just prior to the practical demonstration.
- The candidate will be expected to perform the quality control test given the information provided and answer the corresponding questions.
- The candidate will be allowed 15 minutes to perform each quality control test in the x-ray rooms, and an additional 15 minutes to answer the questions that follow.

The candidate may refer to SC35 Safety Code to answer the acceptance criteria questions. SC35 will be supplied at the time of the assessment.

Resources


Fujifilm *FCR quality assurance program plus: Guidebook for image reader.* (2003). Fuji Photo Film Co., Ltd.


### General Lab Guidelines

<table>
<thead>
<tr>
<th>Section</th>
<th>Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attire</strong></td>
<td>• Scrubs (lab coats may be used only in emergency situations)</td>
</tr>
<tr>
<td></td>
<td>• Closed-toe footwear</td>
</tr>
<tr>
<td></td>
<td>• Long hair tied back, jewelry kept to a minimum</td>
</tr>
<tr>
<td></td>
<td>• <strong>NO:</strong> hats, cell phones, iPods, etc.</td>
</tr>
<tr>
<td><strong>Radiation Safety</strong></td>
<td>• No radiation exposures will be made to any person</td>
</tr>
<tr>
<td></td>
<td>• A lab instructor must be present for all exposures</td>
</tr>
<tr>
<td></td>
<td>• The door to the x-ray room must be closed prior to exposing</td>
</tr>
<tr>
<td></td>
<td>• OSLDs must be worn in the x-ray lab</td>
</tr>
<tr>
<td><strong>General Safety</strong></td>
<td>• As students practice positioning each other, ensure that you take precautions to ensure the safety of your classmates</td>
</tr>
<tr>
<td></td>
<td>• Handle the x-ray equipment with care, and let your instructor know immediately if something appears unsafe</td>
</tr>
<tr>
<td><strong>Handling of Phantoms</strong></td>
<td>• Handle the phantom supplies carefully as they are very expensive</td>
</tr>
<tr>
<td></td>
<td>• The phantoms will be exposed to produce images, always ensure no person is present in the room prior to exposing</td>
</tr>
<tr>
<td><strong>Lab Completion</strong></td>
<td>• Turn off the equipment</td>
</tr>
<tr>
<td></td>
<td>• Clean the room including the table and/or upright bucky</td>
</tr>
<tr>
<td></td>
<td>• Return all materials to their original location</td>
</tr>
</tbody>
</table>
You Shall…

- Close door to x-ray room before exposing, and lock if required
- Make x-ray exposures only with an instructor present
- Before exposing, check:
  - The x-ray tube direction, angulations, and collimation
  - Recheck the control settings
  - The ready position of the equipment
  - That no one will be exposed
- Make sure that you get a complete exposure by pressing firmly on the exposure switch and holding it in contact position until there is indication of exposure completion
- Shield entrances with uncontrolled access and make sure moveable barriers overlap
- Direct the beam away from entrances or occupied areas, as a generally preferred practice
- During the use of mobile x-ray equipment, use the control booth barrier
- When about to enter the x-ray room check that exposure is not about to be made, enter cautiously and into a shielded area, if possible
- Protect x-ray image acquisition devices from exposure to x-rays; by removing them from the exposing area; by not leaving them where scattered radiation may reach them
- Personal radiation monitor (personnel radiation monitors)
  - Damaged personal monitors shall be brought to the attention of the person attending to monitoring service or instructor.
  - Wear personal radiation monitor at chest or belt level with monitor facing towards the front
  - Wear beneath protective apron if apron required
  - Always return to proper location at NAIT after each lab
  - Do not take home or wear personal monitor outside of NAIT
  - Do not leave personal monitor in x-ray room where accidental exposure may occur
  - Return personnel monitor to the storage place at lab completion
  - Make the x-ray exposures from within the control booth whenever possible
  - Reduce the risks of accidental exposure of classmates by not being hasty with the exposure and checking that no one is about to enter the area just as you are about to expose; by making sure fellow students have left the exposure area in good time
  - Inform the instructor of any loose parts, malfunctions or disrepair of lab equipment
  - Take extra precautions if pregnancy is suspected/confirmed
  - Turn x-ray machines “off” when unattended
| Image Reader                  | □ Enter patient’s first and last name  
|                             | □ Enter patient’s birth date  
|                             | □ Select the appropriate examination  |
| Console                     | □ Set the proper technique  
|                             | □ Select the appropriate image receptor (ex. upright bucky or tabletop, etc.)  |
| Room Set-up                 | □ Appropriate cassette ready  
|                             | □ Tube aligned  
|                             | □ SID set  
|                             | □ Supplies ready (markers, sponges, shielding, etc.)  |
| Greeting and Identification | □ Use a pleasant salutation such as “hello” or “good morning”  
|                             | □ Greet the person using their full name and then introduce yourself  
|                             | □ State intention, such as “I’m going to be taking your x-rays today”  
|                             | □ If necessary, have patient change into a gown, remove jewelry, etc.  
|                             | □ In the x-ray room, use two verifiers such as name and DOB  
|                             | □ Verify part being imaged “So what are we x-raying today?”  
|                             | □ For female patients ask possibility of pregnancy and LMP  
|                             | □ Explain the procedure and the approximate length of time  
|                             | □ Ask if there are any questions about the procedure  |
| Procedure                   | □ Shield the patient where possible  
|                             | □ Gently position the patient  
|                             | □ Align the tube and cassette so they are centered to the area of interest  
|                             | □ Collimate to the appropriate size  
|                             | □ Place the marker in the proper location  
|                             | □ Check SID  |
| Exposure                    | □ Confirm that proper technique was set  
|                             | □ Provide patient instructions (hold still, breathing instructions, etc.)  
|                             | □ Announce that you are exposing and the room number  
|                             | □ Instruct the patient to relax/breathe etc.  |
| Completion                  | □ Have the patient wait while you check the images  
|                             | □ Critique images  
|                             | □ After the images have been checked, dismiss the patient: “We have everything we need so you can go. Your doctor will probably have the report in the next 3-5 business days.”  
|                             | □ Clean table and/or upright bucky  
|                             | □ Return supplies to their original locations  |
## Marker Annotation Guidelines

<table>
<thead>
<tr>
<th>Description of Placement</th>
<th>Exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>R or L</strong> Viewed from the anatomical position with the superior aspect of the part (or body) at the top of the cassette</td>
<td>Fingers, hands, wrists, forearms, toes and feet, for which the marker is placed face-up on the prone position with the distal part to the top</td>
</tr>
<tr>
<td><strong>Supine/Posterior Oblique Positions</strong> Lead marker is placed face up on the lateral aspect of the part</td>
<td></td>
</tr>
<tr>
<td><strong>Prone/Anterior Oblique Positions</strong> Lead marker is placed face down on the lateral aspect of the part</td>
<td>Fingers, hands, wrists, forearms, toes and feet, for which the marker is placed face-up on the prone position with the distal part to the top</td>
</tr>
<tr>
<td><strong>Lateral Position</strong> Lead marker indicates the side that is closest to the imaging receptor Marker should be demonstrated at the front/anterior of the body</td>
<td></td>
</tr>
<tr>
<td><strong>Oblique Projections</strong> Remember: the R marker always goes on the right side of the body and the L marker always goes on the left side of the body (for spine, an R and an L are both used)</td>
<td></td>
</tr>
<tr>
<td><strong>Lateral Decubitus Position</strong> Lead marker indicates the elevated side. Use an arrow or an ‘up’ annotation and place on the elevated side.</td>
<td></td>
</tr>
</tbody>
</table>

*Please remember that these are NAIT guidelines/policies and they may vary at clinical sites*
<table>
<thead>
<tr>
<th><strong>Diagnostic Imaging</strong></th>
<th><strong>PACTAD Image Critique</strong></th>
</tr>
</thead>
</table>
| **Projection and Position** | Which projection is demonstrated?  
Is the positioning acceptable?  
- No rotation or tilt  
- Area of interest positioned appropriately |
| **Annotation** | Name and DOB Correct  
Marker(s) present  
- Correct marker(s)  
- Correct orientation and placement |
| **Collimation, Centering, and Cassette/IR** | Collimation is evident and appropriately sized  
X-ray image and IR are both centered to the area of interest  
Cassette is correct size and proper orientation |
| **Technical and Patient Factors** | Exposure is sufficient for adequate penetration of the area of interest  
Exposure is not too great as to expose the patient to unnecessary radiation (S, EI, or LGM numbers within the appropriate range)  
No artifacts are present  
Patient does not require additional projections or positions due to patient factors |
| **Anomalies** | Is there any pathology present? |
| **Discern** | Is the image ready to be sent to PACS?  
Is a repeat required? How would you adjust for a repeat? |
### PACTAD Critique Checklist:
If all checks are filled for a category, the image will be “Diagnostic” for that category

<table>
<thead>
<tr>
<th>Category</th>
<th>Checks</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Projection and Position</strong></td>
<td>- Projection identified &lt;br&gt; - No rotation &lt;br&gt; - No tilt &lt;br&gt; - No other positioning error present</td>
<td>Diagnostic &lt;br&gt; Requires additional action</td>
</tr>
<tr>
<td><strong>Annotation</strong></td>
<td>- Correct name and DOB &lt;br&gt; - Correct marker &lt;br&gt; - Proper orientation and placement of marker</td>
<td>Diagnostic &lt;br&gt; Requires additional action</td>
</tr>
<tr>
<td><strong>Collimation, Centering, and Cassette</strong></td>
<td>- Collimation is evident and appropriately sized &lt;br&gt; - Area of interest is centered to the cassette and the exposure area &lt;br&gt; - Cassette is proper size and orientation</td>
<td>Diagnostic &lt;br&gt; Requires additional action</td>
</tr>
<tr>
<td><strong>Technical and Patient Factors</strong></td>
<td>- Exposure is sufficient for adequate penetration of area of interest &lt;br&gt; - Exposure is not too great so as to expose the patient to unnecessary radiation &lt;br&gt; - No artifacts are present &lt;br&gt; - No patient factors warrant additional views</td>
<td>Diagnostic &lt;br&gt; Requires additional action</td>
</tr>
<tr>
<td><strong>Anomalies</strong></td>
<td>- No pathologies are present</td>
<td>Diagnostic &lt;br&gt; Requires additional action</td>
</tr>
<tr>
<td><strong>Discern</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For any category requiring additional action, list the steps you would take.
RADI1160 Assigned Readings for Merrill’s 12th Ed.
All of the pages are in Volume 1.

General Anatomy
Bone Structure, Function, and Classification: pages 75-85
General Terms: pages 85-95

Upper Extremity
Anatomy for Upper Extremity: pages 101-107
Hand: pages 124-131
Fingers: pages 110-115
Thumb: pages 116-117
Wrist: pages 132, 134-136
Scaphoid: pages 138, 140-141
Radius and Ulna: pages 148-150
Elbow: pages 151-155
Elbow fat pads: page 107
Radial Head: pages 160-161
Humerus: pages 167-168
Anatomy for the Shoulder Girdle: pages 175-181
Shoulder (AP): pages 183-187
Shoulder: 188-189, 194-195, 198-201
Clavicle: pages 213-214
Scapula: pages 216-219
Acromioclavicular Joints: pages 209-210

Lower Extremity
Anatomy for the Lower Extremity: pages 228-239
Toes: pages 242-243, 245-249
Foot: pages 252-257, 260-261
Calcaneus: pages 271, 274
Ankle: pages 279-281, 283-285
Tibia/Fibula: pages 290-293
Knee: pages 296-301
Knee (oblique’s): pages 304-305
Patella: pages 311-312, 316-317
Intercondylar Fossa: pages 308-310
Femur: pages 318-321
Anatomy of the Pelvic Girdle: pages 327-333
Pelvis: pages 337-339
Hip: pages 346-351
Acetabulum: pages 356-357
Ilium: pages 361-362
The projections that are in:

- Black are to be done in practical labs and in theory
- Blue are to be tested in theory only and may be demonstrated in class but will not be in labs or on practical assessments

Upper Extremity

**Upper Limb Anatomy**  
- Hand
- Forearm
- Arm
- Upper limb articulations

**Finger**  
Merrill's volume 1. Chapter 4: Upper Limb. Section: Digits (Second through Fifth).
- PA projection
- Lateral projection
- PA oblique projection

**Thumb**  
- AP projection
- PA projection
- Lateral projection
- PA oblique projection

**Hand**  
- PA projection
- PA oblique projection
- Lateral projection (fan lateral)
- AP oblique projection (Norgaard method)

**Wrist**  
- PA projection
- Lateral projection
- PA oblique projection
- AP oblique projection

**Scaphoid**  
- PA projection: ulnar deviation
- Scaphoid PA Axial projection (Stecher Method)
- Note: for the PA axial scaphoid we will be practicing both the method with the sponge and the method with a 20 degree proximal tube angle

**Forearm**  
- AP projection
- Lateral projection: lateromedial

**Elbow**  
• AP projection
• Lateral projection: lateromedial
• AP oblique projection: medial rotation
• AP oblique projection: lateral rotation
• Radial head lateral projection: lateromedial

**Elbow Fat Pads**  

**Humerus**  
• AP projection: upright
• Lateral projection: lateromedial, mediolateral upright

**Shoulder Girdle**

**Anatomy**  
Merrill's volume 1. Chapter 5: Shoulder Girdle. Section: Anatomy
• Shoulder girdle
• Clavicle
• Scapula
• Humerus
• Shoulder girdle articulations

**Shoulder**  
Merrill's volume 1. Chapter 5: Shoulder Girdle. Section: Shoulder
• AP projection: external neutral, internal rotation humerus
• Glenoid cavity AP Oblique projection (Grashey method): RPO or LPO position
• Inferosuperior axial projection (Lawrence method)
• Superoinferior axial projection
• Scapular Y PA oblique projection

**Scapula**  
• AP projection
• Lateral Projection: RAO or LAO body position

**Clavicle**  
Merrill's volume 1. Chapter 5: Shoulder Girdle. Section: Clavicle
• AP projection
• AP axial projection

**AC Joints**  
Merrill's volume 1. Chapter 5: Shoulder Girdle. Section: Acromioclavicular articulations
• AP projection: Bilateral (Pearson Method): with and without weights

**Lower Extremity and Pelvic Girdle**

**Anatomy of lower limb**  
• Leg
• Femur
• Patella
• Knee Joint
• Lower Limb Articulations

**Toes**  
Merrill's volume 1. Chapter 6: Lower Limb. Section: Toes
• AP or AP axial projections
• AP oblique projection: medial rotation
• Lateral projection: mediolateral or lateromedial

Foot  Merrill's volume 1. Chapter 6: Lower Limb. Section: Foot
  • AP or AP axial projection
  • AP oblique projection: medial rotation
  • Lateral projection: mediolateral

  • Axial projection: plantodorsal
  • Lateral projection: mediolateral

  • AP projection
  • Lateral projection: mediolateral
  • AP oblique Mortise joint : medial rotation
  • AP oblique projection 45 degree: medial rotation

  • AP projection
  • Lateral projection: mediolateral

  • AP projection
  • PA projection
  • Lateral projection: mediolateral
  • AP oblique projection: lateral rotation
  • AP oblique projection: medial rotation
  • AP standing (weight-bearing)

  • PA axial (Camp-Coventry Method)
  • AP axial (Beclere Method)

  • PA projection
  • Lateral projection: mediolateral
  • Tangential projection (Settegast Method)

  • AP projection
  • Lateral projection: mediolateral

Pelvic Girdle

  • Hip bone
  • Proximal femur
  • Articulations of the pelvis
  • Pelvis
• Localizing anatomic structures

**Pelvis**  
• AP projection

**Hip**  
• AP projection  
• Lateral projection: mediolateral (Lauenstein and Hickey Methods)  
• **Axiolateral projection (Danelius-Miller Method)** Demonstration in class

**REQUIRED LEARNING RESOURCES**


Appendix B: Employer/Program Validation Letter RADI 1160

SCHOOL OF HEALTH SCIENCES

Employer Validation Form

To determine if a candidate has the skills, knowledge and abilities equivalent to the outcomes of the course they are seeking credit for an authentic and reliable assessment must take place. An Employer Validation is an important component of the assessment as it provides an indirect, authenticated account of the employee/candidate’s performance in industry.

<table>
<thead>
<tr>
<th>Employment Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Employee/Candidate:</strong></td>
</tr>
<tr>
<td><strong>Employer:</strong></td>
</tr>
<tr>
<td><strong>Address:</strong></td>
</tr>
<tr>
<td><strong>City:</strong></td>
</tr>
<tr>
<td><strong>Supervisor:</strong></td>
</tr>
<tr>
<td><strong>Phone:</strong></td>
</tr>
<tr>
<td><strong>X-ray hours worked per year:</strong></td>
</tr>
<tr>
<td><strong>Employer/Supervisor’s signature:</strong></td>
</tr>
<tr>
<td><strong>Dates of Employment:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Job description and duties:</strong></td>
</tr>
</tbody>
</table>

SCHOOL OF HEALTH SCIENCES

The Employer Validation Checklist must be completed by the employee/candidate’s direct supervisor.
Employer/Program Validation Checklist

Please place a ✔ in the box that aligns with the employee/PLAR candidate’s abilities/performance for each of the following skills.

<table>
<thead>
<tr>
<th>Employee/Candidate:</th>
<th>YES</th>
<th>NO</th>
<th>NA</th>
</tr>
</thead>
</table>

1. Produce and critique radiographic images of the upper limb.  
   (Should include the following components)
   - Describe general anatomy and radiographic positioning terms
   - Identify bony anatomy of upper limb
   - Produce radiographic examinations of the upper limb
   - Critique radiographic images of the upper limb

2. Produce and critique radiographic images of the shoulder girdle.  
   (Should include the following components)
   - Identify bony anatomy
   - Produce radiographic examinations of the shoulder girdle
   - Critique radiographic images of shoulder girdle

3. Produce and critique radiographic images of the lower limb.  
   (Should include the following components)
   - Identify bony anatomy
   - Produce radiographic examinations of the lower limb
   - Critique radiographic images of lower limb

4. Produce and critique radiographic images of the pelvic girdle.  
   (Should include the following components)
   - Identify bony anatomy
   - Produce radiographic examinations of the pelvic girdle
   - Critique radiographic images of pelvic girdle

5. Differentiate and explain pathologies of the appendicular skeleton visualized on radiographic images  
   (Should include the following components)
Appendix C: LAB MANUAL RADI 1130

X-RAY UNIT ORIENTATION LAB

Outcome

1) Identify, locate and operate various features of each of the x-ray units.
2) Locate and identify various cassette sizes.
3) Make exposures with the x-ray unit observing all safety precautions.
4) Process a digital image.

Procedure

1. Turn power on:
   - Master control panel
   - Main power switch
   - On/off switch
2. Allow unit to warm up, realizing that different x-ray units have different methods of indicating readiness. Warm up with 2 warm up exposures in units 2, 3, 4, but this is not required for units 1 & 5.
3. Familiarize yourself with all parts, locks, and accessories of the x-ray unit.
4. For units 2, 3, or 4, find the cassette storage area. Find the computed radiography (CR) cassettes. Which side of the cassette should face the tube?
5. Under supervision,
   - Prepare to make exposures as a group of a phantom body part.
   - Describe the safety precautions taken when making an exposure.
   - Operate the tube movement locks and switches.
6. Process the digital image, and view.
7. Turn x-ray unit power off.
8. For units 1 & 5, set up for a DR (direct exposure) image.
9. Under supervision,
   - Prepare to make exposures as a group of a phantom body part.
   - Describe the safety precautions taken when making an exposure.
   - Operate the tube movement locks and switches.
10. View the digital image.
11. Turn off the x-ray units.
Control Panel

Of particular importance to the operator is the ability to control the amount of x-radiation generated. Basically, three factors must be controlled: 1) Kilovoltage (kVp), 2) Milliamperage (mA), 3) time. Suitable means for selecting these factors are provided on the x-ray control panel. The x-ray units also use anatomical programming to choose the technique for you, as well as automatic exposure control devices (AEC) that also helps regulate radiation exposures.

The On-Off Switch

Pressing the line ON push button energizes selected circuits and puts the control on a “stand-by” basis ready for operation. The pilot light near the ON push button will indicate that electrical power is on. Various electronic devices incorporated in x-ray controls may require a warm-up period; therefore a time delay may be required before the control can be operated. Some signal may be used to indicate that the warm-up period has elapsed.

Pressing the line OFF push button de-energizes the control.

Milliampere (mA) Selector

The mA Selector is simply a convenient way to pre-select milliamperage. The Selector determines the voltage applied to the primary circuit of the x-ray tube filament transformer, and this in turn control the heat of the filament, which in turn determines the number of free electrons available for the production of photons (x-rays).

This sequence of events controls the number (amount) of x-rays produced. Each position of the switch connects a different resistance in the x-ray tube filament transformer primary and thereby provides control.

kVp Selectors

The purpose of this selector is to provide the technologist with a means of selecting the voltage applied to the primary of the high-voltage transformer and thereby the high-voltage to the x-ray tube. This controls the strength of the x-ray beam.

Time Selector

A timer is necessary in order to limit or control x-ray production. This is done by controlling the length of time the primary of the high-voltage transformer is energized.
Using the NAIT Computed Radiography (CR) System (Agfa)

1. Enter patient demographics in CR unit
2. Get a CR cassette from the CR reading unit
3. Erase cassette
   a. Press erase button on reader unit
   b. Insert cassette by placing cassette in CR reading unit as indicated on unit
      a. Place cassette on tray black side up, opening going in first (side with no border)
      b. Push in cassette and then slide cassette to the right all the way
4. Place cassette on table, black side up (orange side down)
5. Put anatomical phantom (hand, foot...) on top
6. Set correct SID, centering point and collimation, etc.
7. Set required technique on control panel
8. Expose
9. Read cassette by placing cassette in CR reading unit as indicated on unit
   a. Place cassette on tray black side up, opening going in first (side with no border)
   b. Push in cassette and then slide cassette to the right all the way
10. Remove cassette when finished
11. Examine CR image on CR unit
12. Examine and evaluate “LGM” number for exposure
13. Manipulate image on CR unit
   a. Invert
   b. Annotate
   c. Add comments to image
   d. Change brightness/contrast
14. Send image to PACS
15. View image on PACS
Using the NAIT Computed Radiography (CR) System (Fuji)

1. Enter patient demographics in CR unit
2. Get a CR cassette from the CR reading unit
3. Hard erase cassette
   1. Press erase button on reader unit twice (for hard erase)
   2. Insert cassette by placing cassette in CR reading unit as indicated on unit
      1. Place cassette on tray gray side up, opening going in first
      2. Slide cassette to the right all the way, push in
4. Place cassette on table, black side up (gray side down)
5. Put anatomical phantom (hand, foot...) on top
6. Set correct SID, centering point and collimation, etc.
7. Set required technique on control panel
8. Expose
9. Bar code cassette
   1. Ensure desired projection/view is turquoise on computer screen
   2. Use barcoding device
10. Read cassette by placing cassette in CR reading unit as indicated on unit
    1. Place cassette on tray gray side up, opening going in first
    2. Slide cassette to the right all the way, push in
11. Remove cassette when finished
12. Examine CR image on CR unit
13. Examine and evaluate “s” number for exposure
14. Manipulate image on CR unit
    1. Invert
    2. Annotate
    3. Add comments to image
    4. Change brightness
    5. Change contrast
15. Send image to PACS
16. View image on PACS
1. Enter patient demographics in computer
2. Open examination
3. Choose projection/view
4. Put anatomical phantom (hand, foot...) on top of table detector
5. Set correct SID, centering point and collimation, etc.
6. Set required technique on control panel
   1. Manual or APR (Anatomically Programmed Radiography)
7. Expose
8. Examine image on computer screen
9. Examine “EIS” number on-screen for exposure
10. Manipulate image on computer screen
    1. Invert
    2. Annotate
    3. Add comments to image
    4. Change brightness
    5. Change contrast
11. Send image to PACS
12. View image on PACS
References


❖ The following pages include the possible quality control tests for the practical assessment portion of the challenge exam and the marking rubric
RADI1130 Practical Assessment

Name: 
Date: 
Unit: 

**HVL (HALF VALUE LAYER)**

1. Set up the test tool(s).

2. Take exposures at 100 cm SID, 100 mAs, and 80 kV.

<table>
<thead>
<tr>
<th>Exposure number</th>
<th>Added amount of filtration (Al.)</th>
<th>mR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.0 mm Al</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>0.5 mm Al</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1.0 mm Al</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1.5 mm Al</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>2.0 mm Al</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>2.5 mm Al</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3.0 mm Al</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>3.5 mm Al</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>4.0 mm Al</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>4.5 mm Al</td>
<td></td>
</tr>
</tbody>
</table>

3. State HVL acceptability at 80 kVp from SC35.

4. What is your conclusion regarding test results?

5. What is the significance should the test fail?
RADI1130 Practical Assessment

Name: 
Date: 
Unit: 

**TIMER ACCURACY TEST**

1. Set up test tool(s) to determine actual exposure time.

2. Expose at 100 cm SID, 60 kV, and 10 mAs for each of the following times.

<table>
<thead>
<tr>
<th>Time set</th>
<th>Time obtained</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 ms</td>
<td></td>
</tr>
<tr>
<td>100 ms</td>
<td></td>
</tr>
<tr>
<td>200 ms</td>
<td>NAIT</td>
</tr>
</tbody>
</table>

3. State exposure time acceptability from SC35.

4. Determine timer error for all three times using the formula below.

   Formula: \[
   \frac{\text{set time} - \text{obtained time}}{\text{set time}} \times 100 \% =
   \]

5. What is your conclusion regarding test results?

6. What is the significance should the test fail?
RADI1130 Practical Assessment

Name:
Date:
Unit:

**REPRODUCIBILITY (COEFFICIENT OF VARIATION)**

1. With test tool(s), take 10 exposures at 100 cm SID, 80 kV, and 40 mAs.

<table>
<thead>
<tr>
<th>Exposure number</th>
<th>Reading</th>
<th>Exposure number</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>mR</td>
<td>6</td>
<td>mR</td>
</tr>
<tr>
<td>2</td>
<td>mR</td>
<td>7</td>
<td>mR</td>
</tr>
<tr>
<td>3</td>
<td>mR</td>
<td>8</td>
<td>mR</td>
</tr>
<tr>
<td>4</td>
<td>mR</td>
<td>9</td>
<td>mR</td>
</tr>
<tr>
<td>5</td>
<td>mR</td>
<td>10</td>
<td>mR</td>
</tr>
</tbody>
</table>

2. State coefficient of variation and percent of mean acceptability from SC35.

3. **We will not be determining coefficient of variation today.**

4. Determine percent difference using maximum & minimum values.

   Formula: \[
   \frac{(\text{mean value} - \text{max. value})}{\text{mean value}} \times 100 = \]

   Formula: \[
   \frac{(\text{mean value} - \text{min. value})}{\text{mean value}} \times 100 = \]

5. What is your conclusion regarding test results?

6. What is the significance should the test fail?
RADI1130 Practical Assessment

Name:
Date:
Unit:

**KVP ACCURACY**

1. Set up test tool(s).

2. Expose at the following kV settings using 100 cm SID and 10 mAs.

<table>
<thead>
<tr>
<th>kV</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 kV</td>
<td></td>
</tr>
<tr>
<td>80 kV</td>
<td></td>
</tr>
<tr>
<td>100 kV</td>
<td>NAIT</td>
</tr>
</tbody>
</table>

3. State kV acceptability from SC35.

4. Determine kV accuracy using the formula below.

   Formula: \[ \frac{\text{set kV} - \text{obtained kV}}{\text{set kV}} \times 100 = \]

5. What is your conclusion regarding test results?

6. What is the significance should the test fail?
RADI1130 Practical Assessment

Name:  
Date:  
Unit:  

**MA LINEARITY**

1. Set up test tool(s).

2. Using the 100 mA and 200 mA stations, make 3 exposures each at 100 cm (40 inch) SID, 80 kV, and 0.10 seconds (100 ms).

3. Record results on the following chart.

<table>
<thead>
<tr>
<th>mA</th>
<th>mAs</th>
<th>mR</th>
<th>Average mR</th>
<th>Average mR/mAs</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Calculate % linearity for entire range (as only two stations used) =

\[
\frac{(\text{maximum mR/mAs} - \text{minimum mR/mAs})}{2} \times 100
\]

OR

Calculate station to station =

\[|x_1 - x_2| \leq 0.10 (x_1 + x_2)\]

5. State mA linearity acceptability from SC35.

6. What is your conclusion regarding test results?

7. What is the significance should the test fail?

**REFERENCE LIST:**


Fujifilm FCR quality assurance program plus: Guidebook for image reader. (2003). Fuji Photo Film Co., Ltd.


<table>
<thead>
<tr>
<th>Criteria</th>
<th>Level</th>
<th>4 Excellent</th>
<th>3 Proficient</th>
<th>2 Adequate</th>
<th>1 Limited</th>
<th>Insufficient</th>
<th>Total/ Comments:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper use of personal radiation monitor and safety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>protocols</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preformed testing safely and wore OSLD</td>
<td></td>
<td></td>
<td></td>
<td>Did not perform testing safely and did not wear OSLD.</td>
<td></td>
</tr>
<tr>
<td>Proper equipment set up and test tool management to</td>
<td></td>
<td>Proper set up of test tool and equipment</td>
<td>Some steps missed during initial set up, corrected before exposure</td>
<td>Few steps missed during initial set up and not identified</td>
<td>Multiple steps missed during initial set up and not identified</td>
<td>Could not perform, set up or use test tool correctly</td>
<td></td>
</tr>
<tr>
<td>include: control panel and technical factors</td>
<td></td>
<td>Proper sequencing of procedures</td>
<td>Testing preformed with incorrect sequencing causing a repeat procedure step</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proper sequence of procedures to include: locks,</td>
<td></td>
<td>All data recorded and analyzed</td>
<td>Most data recorded and analyzed</td>
<td>Partial completion of data and analysis</td>
<td>Only data recorded and not analyzed</td>
<td>No data recorded nor analyzed</td>
<td></td>
</tr>
<tr>
<td>collimation, centering</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correct recording and analysis of data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Significance of test procedure</td>
<td></td>
<td>Identified and fully explained testing significance</td>
<td>Provided a singular statement of test significance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total score/Total possible score: / 20
# APPENDIX D: Employer/Program Validation RADI 1130

## SCHOOL OF HEALTH SCIENCES
### Employer/Program Validation Form

To determine if a candidate has the skills, knowledge and abilities equivalent to the outcomes of the course they are seeking credit for an authentic and reliable assessment must take place. An Employer Validation is an important component of the assessment as it provides an indirect, authenticated account of the employee/candidate’s performance in industry.

<table>
<thead>
<tr>
<th>Employment Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Employee/Candidate:</strong></td>
</tr>
<tr>
<td><strong>Employer/Program:</strong></td>
</tr>
<tr>
<td><strong>Address:</strong></td>
</tr>
<tr>
<td><strong>City:</strong></td>
</tr>
<tr>
<td><strong>Supervisor:</strong></td>
</tr>
<tr>
<td><strong>Phone:</strong></td>
</tr>
<tr>
<td><strong>Diagnostic imaging hours worked per year:</strong></td>
</tr>
<tr>
<td><strong>Employer/Supervisor’s signature:</strong></td>
</tr>
<tr>
<td><strong>Dates of Employment:</strong></td>
</tr>
</tbody>
</table>

| (dd/mm/yy) | (dd/mm/yy) |

| Job description and duties: |