



# MEDI12007 Quality Processes for Dose and Image Optimisation

## Term 3 - 2024

Profile information current as at 05/11/2024 03:48 pm

All details in this unit profile for MEDI12007 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

## General Information

### Overview

You will apply knowledge of equipment operation and use as well as radiographic image acquisition techniques to the optimisation of radiographic images and patient dose. You will apply the concepts of quality control testing and quality assurance to monitor equipment performance, detect performance issues, document findings and determine corrective action. You will consider imaging quality processes in the larger context of facility quality management and compliance with external standards. You will investigate the impact of technical factor selection on patient dose and image quality. Through these you will learn to make informed selections and modifications of technical parameters for radiographic procedures and to justify your decision-making.

### Details

Career Level: *Undergraduate*

Unit Level: *Level 2*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

### Pre-requisites or Co-requisites

Pre-requisites: MEDI12001 Radiation Science MEDI12002 Science and Instrumentation 1 MEDI12005 Science & Instrumentation 2 Co-requisite: MEDI12004 Medical Imaging Clinical Placement 1

Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the [Assessment Policy and Procedure \(Higher Education Coursework\)](#).

### Offerings For Term 3 - 2024

- Mixed Mode

### Attendance Requirements

All on-campus students are expected to attend scheduled classes - in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

### Website

[This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.](#)

## Class and Assessment Overview

### Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

### Class Timetable

#### [Regional Campuses](#)

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

#### [Metropolitan Campuses](#)

Adelaide, Brisbane, Melbourne, Perth, Sydney

### Assessment Overview

#### 1. **On-campus Activity**

Weighting: Pass/Fail

#### 2. **In-class Test(s)**

Weighting: 20%

#### 3. **Practical and Written Assessment**

Weighting: 30%

#### 4. **Online Test**

Weighting: 50%

### Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the [University's Grades and Results Policy](#) for more details of interim results and final grades.

## CQUniversity Policies

**All University policies are available on the [CQUniversity Policy site](#).**

You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the [CQUniversity Policy site](#).

## Previous Student Feedback

### Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

#### Feedback from Informal student feedback, teaching team observations

**Feedback**

Students entered their lab data into the provided Excel-based workbook which automatically performed required calculations. Although efficient for lab test completion, it resulted in many students not understanding the data analysis processes.

**Recommendation**

Modify the lab workbook to remove the automatic calculations.

#### Feedback from Informal student feedback, teaching team observations

**Feedback**

The three days of residential school was tightly packed with lab and classroom activities. Students had no independent study time to analyse their lab data or create summary notes to support retention of learning.

**Recommendation**

Modify the residential school schedule to incorporate time for data analysis and debriefing.

#### Feedback from Informal student feedback, teaching team observations

**Feedback**

Many students had not completed the requisite learning activities in the first two weeks to prepare them for both the lab activities and the in-class test of the res school in the third week.

**Recommendation**

Send multiple targeted announcements and emails to students at the start of the unit to specify what needs to be completed prior to the res school and why.

## Unit Learning Outcomes

### On successful completion of this unit, you will be able to:

1. Assess the performance of radiographic, fluoroscopic and ancillary equipment relative to quality standards.
2. Troubleshoot imaging faults and equipment problems
3. Apply metrics of image quality to describe and evaluate visibility and accuracy of structures demonstrated on radiographic images
4. Relate radiographic equipment performance and the selection of image acquisition and processing parameters to patient dose and image quality
5. Critically appraise evidence to inform decision-making in technical parameter selection to address dose and image optimisation
6. Discuss the interconnections of imaging quality control, dose management, departmental quality management and compliance with external quality and safety standards for clinical imaging facilities.

The unit links to the following Professional Capabilities for Medical Radiation Practitioners as detailed by the Medical Radiation Practice Board of Australia (effective March 2020):

#### Domain 1A Diagnostic radiographer:

- 1. Perform projection radiography examinations in a range of settings.
  - a. Operate projection radiography systems safely and effectively in a range of settings
  - c. Use standard radiographic projections and exposure factors for the patient's/client's body area being examined and, when appropriate, modify them to consider patient/client presentation, clinical indications and mechanisms of injury
  - f. Critically evaluate images against radiographic criteria including assessment of exposure index, field of view and anatomical rotation
  - g. Collaborate in the design and evaluation of projection radiography protocols.

#### Domain 2: Professional and ethical practitioner:

- 3. Take responsibility and accountability for professional decisions.
  - c. Integrate organisational policies and guidelines with professional standards and apply to practice.

#### Domain 4: Evidence-informed practitioner:

- 1. Resolve challenges through application of critical thinking and reflective practice
  - a. Identify the challenge or question and the information that is needed to respond
  - b. Find, critically appraise, interpret and apply best available research evidence to inform clinical reasoning and professional decision-making

#### Domain 5: Radiation safety and risk manager:

- 1. Perform and provide safe radiation practice
  - a. Comply with relevant radiation safety legislation
- 3. Implement quality assurance processes imaging or treating patients/clients
  - a. Check and confirm that all equipment is in good order and operating within acceptable parameters
  - b. Follow protocols to record details of all routine equipment checks
  - c. Identify and take appropriate action to correct unacceptable condition or operation of all equipment
  - d. Follow protocols to record and report non-conformance of all equipment.

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



### Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes					
	1	2	3	4	5	6
1 - On-campus Activity - 0%	•		•	•	•	
2 - In-class Test(s) - 20%	•					
3 - Practical and Written Assessment - 30%			•	•	•	
4 - Online Test - 50%	•	•	•	•		•

### Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
1 - Communication	•	•	•	•	•	
2 - Problem Solving	•	•	•	•	•	
3 - Critical Thinking						•
4 - Information Literacy	•		•		•	•
5 - Team Work						
6 - Information Technology Competence	•	•	•			
7 - Cross Cultural Competence						
8 - Ethical practice					•	•
9 - Social Innovation						
10 - Aboriginal and Torres Strait Islander Cultures						

## Textbooks and Resources

### Textbooks

MEDI12007

#### Prescribed

##### **Digital radiography: physical principles and quality control**

Edition: 2nd (2019)

Authors: Euclid Seeram

Springer

Cham , Switzerland

ISBN: 9789811332449

This e-book is available through the University's Library. Students are not required to purchase a hard copy.

MEDI12007

#### Prescribed

##### **Dose Optimisation in digital radiography and computed tomography: an essential guide**

Edition: 1st (2023)

Authors: Euclid Seeram

Springer

Cham , Switzerland

ISBN: 9783031228711

This e-book is available through the University's Library. Students are not required to purchase a hard copy.

MEDI12007

#### Prescribed

##### **Radiography in the digital age: physics - exposure - radiation biology**

Edition: 4th (2023)

Authors: Quinn Carroll

Charles C. Thomas

Springfield , Illinois , USA

ISBN: 9780398094089

This e-book is available through the University's Library. Students are not required to purchase a hard copy.

#### Additional Textbook Information

The prescribed e-books, all available through the University's Library, will be used throughout this unit. Additional e-resources (including publications, journal article and books), also available through the Library, will be referenced for specific weeks of unit content.

### IT Resources

#### You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)

## Referencing Style

All submissions for this unit must use the referencing style: [Vancouver](#)

For further information, see the Assessment Tasks.

## Teaching Contacts

**Caroline Falconi** Unit Coordinator

[c.falconi@cqu.edu.au](mailto:c.falconi@cqu.edu.au)

## Schedule

**OFFERING 1 Week 1 - 04 Nov 2024**

Module/Topic	Chapter	Events and Submissions/Topic
<ul style="list-style-type: none"> <li>• Introduction to quality processes</li> <li>• Metrics related to image quality and imaging system performance</li> <li>• The role of technical parameter selection on image quality and patient dose</li> <li>• Equipment performance attributes and their significance to image quality and patient dose</li> </ul>	Selected readings as listed on the unit e-reading list	Online tutorial Thursday 10:00 - 11:00 am

**OFFERING 1 Week 2 - 11 Nov 2024**

Module/Topic	Chapter	Events and Submissions/Topic
<ul style="list-style-type: none"> <li>• Introduction to equipment testing</li> <li>• Principles of diagnostic test selection in healthcare</li> <li>• Evaluation of diagnostic tests and protocols</li> </ul>	Selected readings as listed on the unit e-reading list	Online tutorial Thursday 10:00 - 11:00 am

**OFFERING 1 Week 3 - 18 Nov 2024**

Module/Topic	Chapter	Events and Submissions/Topic
Experiential learning to apply concepts from Weeks 1 and 2	Selected readings as listed on the unit e-reading list	<b>Residential school</b> for Offering 1 Wednesday - Friday 20 - 22 Nov 2024 <b>In-class test</b> for Offering 1 Wednesday 20 Nov 2024

**OFFERING 1 Week 4 - 25 Nov 2024**

Module/Topic	Chapter	Events and Submissions/Topic
<ul style="list-style-type: none"> <li>• Troubleshooting of equipment performance issues</li> <li>• Image artefacts</li> <li>• Reject analysis</li> </ul>	Selected readings as listed on the unit e-reading list	Online tutorial Thursday 10:00 - 11:00 am

**OFFERING 1 Week 5 - 02 Dec 2024**

Module/Topic	Chapter	Events and Submissions/Topic
<ul style="list-style-type: none"> <li>• Exposure analysis</li> <li>• QA testing of specialised equipment</li> </ul>	Selected readings as listed on the unit e-reading list	Online tutorial Thursday 10:00 - 11:00 am

**OFFERING 1 Week 6 - 09 Dec 2024**

Module/Topic	Chapter	Events and Submissions/Topic
<ul style="list-style-type: none"> <li>• QA programs for monitoring and maintaining equipment performance</li> <li>• Using quality improvement concepts to optimise image acquisition and processing parameters, protocols and practices</li> </ul>	Selected readings as listed on the unit e-reading list	Online tutorial Thursday 10:00 - 11:00 am <b>Report on Evaluation of Imaging Protocols</b> for Offering 1 due Wednesday 11 Dec 2024

**OFFERING 1 Week 7 - 16 Dec 2024**

Module/Topic	Chapter	Events and Submissions/Topic
Consolidation and assessment		<b>Final online test</b> for Offering 1 Wednesday 18 Dec 2024

**OFFERING 2 Week 1 - 16 Dec 2024**

Module/Topic	Chapter	Events and Submissions/Topic

- Introduction to quality processes
- Metrics related to image quality and imaging system performance
- The role of technical parameter selection on image quality and patient dose
- Equipment performance attributes and their significance to image quality and patient dose

Selected readings as listed on the unit e-reading list

Online tutorial Thursday 10:00 - 11:00 am

#### Vacation Weeks - 23 Dec 2024

Module/Topic	Chapter	Events and Submissions/Topic
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#### OFFERING 2 Week 2 - 06 Jan 2025

Module/Topic	Chapter	Events and Submissions/Topic
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- Introduction to equipment testing
- Principles of diagnostic test selection in healthcare
- Evaluation of diagnostic tests and Protocols

Selected readings as listed on the unit e-reading list

Online tutorial Thursday 10:00 - 11:00 am

#### OFFERING 2 Week 3 - 13 Jan 2025

Module/Topic	Chapter	Events and Submissions/Topic
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Experiential learning to apply concepts from Weeks 1 and 2

Selected readings as listed on the unit e-reading list

**Residential school** for Offering 2  
Wednesday - Friday 15 - 17 Jan 2025  
**In-class test** for Offering 2  
Wednesday 15 Jan 2025

#### OFFERING 2 Week 4 - 20 Jan 2025

Module/Topic	Chapter	Events and Submissions/Topic
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- Troubleshooting of equipment performance issues
- Image artefacts
- Reject analysis

Selected readings as listed on the unit e-reading list

Online tutorial Thursday 10:00 - 11:00 am

#### OFFERING 2 Week 5 - 27 Jan 2025

Module/Topic	Chapter	Events and Submissions/Topic
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- Exposure analysis
- QA testing of specialised equipment

Selected readings as listed on the unit e-reading list

Online tutorial Thursday 10:00 - 11:00 am

#### OFFERING 2 Week 6 - 03 Feb 2025

Module/Topic	Chapter	Events and Submissions/Topic
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- QA programs for monitoring and maintaining equipment performance
- Using quality improvement concepts to optimise image acquisition and processing parameters, protocols and practices

Selected readings as listed on the unit e-reading list

Online tutorial Thursday 10:00 - 11:00 am  
**Report on Evaluation of Imaging Protocols** for Offering 2 due  
Wednesday 5 Feb 2025

#### OFFERING 2 Week 7 - 10 Feb 2025

Module/Topic	Chapter	Events and Submissions/Topic
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Consolidation and assessment

**Final online test for Offering 2**  
Wednesday 12 Feb 2025



## Term Specific Information

This unit runs over a period of seven academic weeks. Since most students in the unit are undertaking a clinical placement in either the first half of term or the second, the unit is delivered in two offerings. Each offering has assessment due dates that are within its seven-week period. There is a three day compulsory residential school in the third week of each offering. You will need to attend for all day for all three days, because participation and completion of lab and classroom activities is an assessment task. As well, an in-class closed book test takes place in the morning of the first day of the residential school.

- **Offering 1** in Weeks 1 - 7 of the term is for students who have been allocated a clinical placement in January - February 2025
  - Offering 1 residential school dates: Wednesday - Friday 20 - 22 November 2024
- **Offering 2** in Weeks 7 - 13 of the term is for students who have been allocated a clinical placement in November - December 2024
  - Offering 2 residential school dates: Wednesday - Friday 15 - 17 January 2025

As for all classes in the Medical Imaging clinical simulation laboratories, you are required to comply with the Medical Imaging dress code for all lab sessions during the residential school. You will also need your swipe card for lab access.

In accordance with the Australian Government's quality standards for tertiary education, you are expected to commit 150 hours of engagement to the unit during your seven week period. That equates to about 22 hours (about 3 working days) per week for this unit. *Plan to commit that weekly time in all seven weeks.* In the first two weeks of the unit your weekly time should be spent primarily on theory study to prepare you for the Week 3 residential school. In the weeks following the res school your weekly time should be split between theory study and assessment preparation.

The weekly unit learning activities include watching recorded lectures, completing assigned readings, answering questions in advance of the tutorial and participating in the tutorial. The tutorials are run online (other than during the residential school) and will be recorded only if at least three students attend.

## Assessment Tasks

### 1 Residential school

#### Assessment Type

On-campus Activity

#### Task Description

You are required to attend a three day residential ('res') school in the third week of your offering. The res school has multiple components, all related to the evaluation of equipment performance and evaluation of technical parameters for dose and image optimisation.

On the morning of the first day of the res school you will undertake an in-class test on radiographic equipment performance and equipment testing. Your preparation for that test supports your ability to carry out the equipment testing and data analysis activities during the res school. Further information about the in-class test is provided in the Task Description for that assessment task.

Across the three days you will participate in small group lab and classroom activities. You will propose and test modifications to imaging parameters. You will conduct quality control and troubleshooting tests on imaging equipment. You will collect data that you will use in your written assignment. You will also participate in image evaluation of test images to contribute data that will be used for evaluation of radiographic imaging protocols.

You will record the image planning, predictions, lab data and associated analysis of your group's lab activities in your lab workbook and upload that at the end of each day of the res school. You will use the content of your completed lab workbook to complete your practical and written assignment.

Res schools are scheduled as follows:

- **Offering 1:** Students completing the unit in November/December will attend res school during Wednesday - Friday 20 - 22 November 2024
- **Offering 2:** Students completing the unit in January/February will attend res school during Wednesday - Friday

15 - 17 January 2025

A daily schedule of activities will be posted on the unit Moodle site. Note that the in-class test will take place in the morning of Day 1 of your res school, so plan your travel to ensure arrival by 9:30 am that day.

This is a pass/fail assessment task that must be completed as scheduled. If you are unable to attend the res school, you must apply for an assessment extension and provide supporting evidence of extraordinary circumstances that prevent your attendance. If your extension is approved, you will be assigned a new res school date. This will impact the timelines for all other assessments for the unit.

### **Assessment Due Date**

Offering 1: 20 - 22 November 2024. Offering 2: 15 - 17 January 2025.

### **Return Date to Students**

Result will be confirmed within two weeks of the third day of the assigned res school

### **Weighting**

Pass/Fail

### **Minimum mark or grade**

Pass

### **Assessment Criteria**

This is a non-graded assessment task. In order to attain a 'Pass' score for this task, you must:

- undertake the in-class test as scheduled in the morning of Day 1 of your assigned res school
- attend all scheduled lab and classroom sessions within your assigned res school
- participate as a member of your lab group in carrying out lab activities
- complete each day's required workbook components and upload the workbook by 6:00 pm each of the three days of the res school

### **Referencing Style**

- [Vancouver](#)

### **Submission**

Online

### **Learning Outcomes Assessed**

- Assess the performance of radiographic, fluoroscopic and ancillary equipment relative to quality standards.
- Apply metrics of image quality to describe and evaluate visibility and accuracy of structures demonstrated on radiographic images
- Relate radiographic equipment performance and the selection of image acquisition and processing parameters to patient dose and image quality
- Critically appraise evidence to inform decision-making in technical parameter selection to address dose and image optimisation

### **Graduate Attributes**

## **2 In-class test**

### **Assessment Type**

In-class Test(s)

### **Task Description**

This is a closed-book on-campus supervised test. You will complete this test in the morning of your first day of your residential ('res') school for the unit.

The test focuses on imaging equipment performance attributes and standard methods of measuring those attributes. You are expected to apply prior knowledge of imaging equipment construction, function and controls.

All questions will be based on the posted weekly learning goals for Weeks 1 and 2 as relating to unit learning outcome #1 'Assess the performance of radiographic, fluoroscopic and ancillary equipment relative to quality standards'. Questions may include analysis of diagrams, photographs and/or radiographs. Question types may include multiple choice, fill-in-the-blank, matching, and true/false with explanation and written response.

The test is 60 minutes in length and provided as a Moodle quiz. You will sit the test in the designated on-campus computer lab at the scheduled time for your res school:

- Offering 1: Test period is 9:35 - 10:45 am Wed 20 Nov 2024
- Offering 2: Test period is 9:35 - 10:45 am Wed 15 Jan 2025

**This test must be written at the scheduled date and time for your assigned res school and as posted on the unit Moodle site.** As per the Assessment Procedures, this task is to be completed during a defined period. There is no opportunity to apply a late penalty. If you arrive late, you may enter the test room up to 30 minutes after the start of the test; however, you will still be required to submit your test at the standard test end time. You are allowed a single attempt.

Please see Section 5 of the University's Assessment Policy and Procedure for details regarding Assessment Management, specifically around assessment extension. In the absence of an approved extension, you cannot complete this assessment at a later time, and you will receive a mark of zero for the assessment if you have not completed it by the scheduled date and time.

*You cannot sit the test after you have attended residential school.* If you are unable to sit the test at the scheduled time and you have an approved extension, you will be assigned a new test date AND a new residential school date. It is your responsibility to ensure that you can attend at that new assigned dates/times.

### **Assessment Due Date**

Offering 1: 20 Nov 2024 10:45 am AEST. Offering 2: 15 Jan 2025 10:45 am AEST

### **Return Date to Students**

Two weeks after the test date

### **Weighting**

20%

### **Assessment Criteria**

Question responses will be scored on the following criteria:

- factual correctness
- correct use of terminology
- completeness and relevance of the response in addressing the question that was asked

### **Referencing Style**

- [Vancouver](#)

### **Submission**

Online

### **Learning Outcomes Assessed**

- Assess the performance of radiographic, fluoroscopic and ancillary equipment relative to quality standards.

### **Graduate Attributes**

## **3 Report on evaluation of imaging protocols**

### **Assessment Type**

Practical and Written Assessment

### **Task Description**

#### **Overview:**

In the medical imaging profession, radiographic image quality and patient dose are highly dependent on the judicious selection of technical parameters. Your skill in selecting technical parameters in response to clinical circumstances and current best practice will be a fundamental part of your professional practice as a radiographer. Evaluation of imaging protocols and participation in the development of new protocols are required entry-to-practice capabilities.

#### **Practical component:**

The practical components of this assessment will be completed during the res school. Your lab group will be provided with an anatomical test object which has one or more simulated lesions within it. These lesions simulate a hypothetical disease process. Your group will produce a series of radiographs of the same projection of the anatomical object. The first, the baseline image, will be acquired with standard technical parameters that are provided to you. For each of the other required images, your group will modify one or more technical parameter with the goal of either reducing the

patient's absorbed dose with minimal loss of lesion visibility or increasing lesion visibility with minimal increase in patient dose. Your group will also image a low contrast detectability test object using the baseline parameters and your group's selected sets of modified technical parameters.

The second practical component requires you to evaluate the visibility of the simulated lesions on displayed anonymised images of the anatomical test object. You will score lesion visibility on test protocol and baseline images using standardised scoring. All scoring data will be merged into a single anonymised dataset for that res school.

### **Written component:**

There are two parts to the written component, both following on from the practical component.

Following the res school, you will be assigned two imaging protocols for the anatomical test object, one using the baseline parameters and the other using a protocol formulated by another lab group. You will be provided the images (both of the anatomical test object and the low contrast detectability test object) and the associated data, including acquisition parameters and detection scores. You will use the images and data to compare the two protocols using principles of diagnostic test evaluation. You will then make a reasoned recommendation regarding which protocol should be adopted for investigation of the hypothetical condition.

For the second part of the written component, you will answer a series of questions to discuss the impacts of specific aspects of selection of image acquisition and processing parameters on patient dose and image quality. This will focus on discussion of your group's images and the chosen modifications to technical parameters to achieve specific goals. Further details on written component, including the scoring rubric, the specific questions you will address and the format of the submission, will be provided on the Moodle site. The questions will be different for each offering of the unit during the term.

### **Assessment Due Date**

Offering 1: Wednesday 11 December 2024 11:45 pm AEST. Offering 2: Wednesday 5 February 2025 11:45 pm AEST.

### **Return Date to Students**

Return two weeks after assessment due date

### **Weighting**

30%

### **Minimum mark or grade**

50%

### **Assessment Criteria**

The assignment will be evaluated using the following criteria:

- Completeness of all components relative to the posted assignment instructions
- Correct application of theoretical concepts
- Factual correctness of calculations, explanations and discussions
- Relevance of responses in addressing what was asked
- Correct use of terminology
- Clarity of communication
- Evidence of problem-solving skills
- Use of authoritative external sources to inform decision-making

### **Referencing Style**

- [Vancouver](#)

### **Submission**

Online

### **Learning Outcomes Assessed**

- Apply metrics of image quality to describe and evaluate visibility and accuracy of structures demonstrated on radiographic images
- Relate radiographic equipment performance and the selection of image acquisition and processing parameters to patient dose and image quality
- Critically appraise evidence to inform decision-making in technical parameter selection to address dose and image optimisation

## Graduate Attributes

### 4 Final online test

#### Assessment Type

Online Test

#### Task Description

You will complete a summative online test in Week 7 of your assigned offering of the unit.

You will have two hours (120 minutes) to complete the test in Moodle. The test will be available for a three hour period between 2:00 - 5:00 pm AEST on the stated due date for your offering of the unit. If you start the test with less than 120 minutes remaining in the availability period, your test will still close at 5:00 pm. You are allowed a single attempt. Once you start the test, it will close after 120 minutes or the end of the availability period, whichever comes first. *Note that the listed due date is the closing time of the test.*

The aim of this test is for you to demonstrate your ability to apply the concepts of the six weeks of unit material that relate to Unit Learning Outcomes 1 - 4 and 6. All questions will be based on the posted weekly learning goals. A portion of the questions will be short-answer, matching and/or multiple choice questions. Long answer question tasks will be of the same types that you will practice in the weekly tutorials. These tasks may include explanations, application of concepts to specific clinical scenarios, analysis of data, and/or interpretation of diagrams, photographs and/or radiographs.

To prepare for this test you should have constructed summary notes relative to the weekly learning goals and have familiarity with your resources to use them effectively. You will also be expected to have ready access to the Queensland performance standards for diagnostic imaging equipment and to know how to apply them.

During the test you may access your study notes, textbook, the unit Moodle site and/or any website. The time allocated for completing questions assumes you will have been engaging with the unit and are reasonably familiar with the unit material. You must be mindful of the time you are taking to answer each question because it is likely you will not have sufficient time to look up material for every question. The test will include a suggested time budget for working through the questions.

As this test includes many long-response questions, it is recommended that you undertake it using a computer rather than tablet or phone. You will be expected to view images and use information from those, so it is your responsibility to ensure that you have sufficient screen display size and appropriate ambient lighting conditions to view radiographs. You are also responsible for ensuring that you have a reliable high speed internet connection throughout the test.

While this is an open book assessment, the standards of academic integrity still apply. This assessment is to be undertaken as an individual. All responses must be your own work. Colluding with other students on non-group work is considered academic misconduct. During the test you must not consult with any other person via any means (including but not limited to verbally, electronically or in writing) or accept any input or assistance from any other person or artificial intelligence (AI) source regarding the test questions and your responses. You may not share the test content with any other person for any reason both during and after the test.

Just as for written assignments, you must acknowledge intellectual content in your answers that is not your own work. Generally accepted statements of facts are considered 'common knowledge' in the context of this unit so they do not need to be cited. If you use an external source for an explanation or reasoning and you paraphrase it, you must still formally cite your source. If you copy any explanation content word-for-word from ANY source (including lecture slides), you must put that content in quotation marks and formally cite your source.

At the start of the test you will need to make a declaration that you understand these standards of academic integrity and that you agree to abide by them. any identified potential academic integrity breaches will be reported and investigated.

This test must be written by the due date and time. Please see Section 5 Assessment Management of the University's Assessment Policy and Procedure for details around assessment extension. In the absence of an approved extension, you cannot complete this assessment at a later time and if you have not submitted it by the scheduled date and time you will receive a mark of zero for the assessment. If you have an approved extension, you will be assigned a new test date/time as soon as reasonably possible following the extension. It is your responsibility to be available at that new test date/time.

#### Assessment Due Date

Offering 1: 18 December 2024 5:00 pm AEST. Offering 2: 12 February 2025 5:00 pm AEST.

**Return Date to Students**

Results will be released two weeks after the test date.

**Weighting**

50%

**Minimum mark or grade**

50%

**Assessment Criteria**

Question responses will be scored on the following criteria:

- factual correctness
- correct use of terminology
- correct application of concepts to the specific content of the question
- completeness and relevance of the response in addressing the question that was asked
- evidence of problem-solving skills

**Referencing Style**

- [Vancouver](#)

**Submission**

Online

**Learning Outcomes Assessed**

- Assess the performance of radiographic, fluoroscopic and ancillary equipment relative to quality standards.
- Troubleshoot imaging faults and equipment problems
- Apply metrics of image quality to describe and evaluate visibility and accuracy of structures demonstrated on radiographic images
- Relate radiographic equipment performance and the selection of image acquisition and processing parameters to patient dose and image quality
- Discuss the interconnections of imaging quality control, dose management, departmental quality management and compliance with external quality and safety standards for clinical imaging facilities.

**Graduate Attributes**

## Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the [Student Academic Integrity Policy and Procedure](#). This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

### What is a breach of academic integrity?

A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

### Why is academic integrity important?

A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

### Where can I get assistance?

For academic advice and guidance, the [Academic Learning Centre \(ALC\)](#) can support you in becoming confident in completing assessments with integrity and of high standard.

### What can you do to act with integrity?



#### Be Honest

If your assessment task is done by someone else, it would be dishonest of you to claim it as your own



#### Seek Help

If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)



#### Produce Original Work

Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem