



MEDI12008 Foundations of Radiation Science

Term 2 - 2024

Profile information current as at 29/07/2024 05:47 pm

All details in this unit profile for MEDI12008 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

This unit will provide you with the foundational science knowledge needed for future study of the safe and effective use of x-ray imaging equipment and production of diagnostic radiography images. You will learn the theoretical concepts of radiation production and control, radiation interactions in matter, and basics of digital radiographic image recording and processing. This learning will be underpinned by a study of core physics concepts. You will learn how and why to limit radiation exposure through the study of radiation bioeffects and best practices in radiation protection.

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

Enrolment in CB77

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 2 - 2024

- Online

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. **Report**

Weighting: 30%

2. **Online Test**

Weighting: 20%

3. **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 Unit Coordinator reflection

Feedback

None of the students attended the bi-weekly clarification drop-in sessions throughout the term.

Recommendation

Cease offering the bi-weekly clarification drop-in sessions in subsequent iterations of the unit.

Feedback from Unit Coordinator reflection

Feedback

Students will benefit from lecture content containing real-world and/or clinical scenarios that are relevant and applicable to the Chiropractic professional context.

Recommendation

Review lecture content and incorporate real-world and/or clinical scenarios that are relevant and applicable to the Chiropractic professional context.

Feedback from Unit Coordinator reflection Informal student feedback

Feedback

Some students perceive the Radiation Production and Imaging Report as an ineffective assessment tool leading to diminished motivation for students to invest time and effort into the assessment.

Recommendation

Review the appropriateness of the existing Radiation Production and Imaging report as an assessment tool and consider alternative methods, such as online tests, to improve the overall efficiency of the assessment process.

Feedback from PASS team PASS student leaders Unit Coordinator reflection

Feedback

The Peer Assisted Study Sessions (PASS), typically available for Year 1 units at CQU, were introduced for the first time in this second-year unit. Despite consistent reminders, none of the students showed any interest or participated in the Peer Assisted Study Sessions (PASS).

Recommendation

Reassess the option to offer Peer Assisted Study Sessions (PASS) in future iterations of the unit given the lack of interest and participation by students.

Feedback from PASS student leaders Unit Coordinator reflection Informal student feedback

Feedback

Some students preferred the weekly tutorials to focus on content covered during that week instead of a retrospective coverage in the subsequent week.

Recommendation

Invest in the option to offer weekly tutorials in the same week of content coverage instead of retrospective coverage the following week to support and promote a more effective learning experience for the students.

Feedback from PASS student leaders Unit Coordinator reflection Informal student feedback

Feedback

Many students perceived the study skills content covered in the initial tutorial not particularly relevant or beneficial to their learning needs as second year students.

Recommendation

Remove the content on study skills from the initial tutorial content and focus this first tutorial on the week 1 unit content to provide a more meaningful learning experience for the students.

Unit Learning Outcomes

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

1. Discuss the underlying physical principles of and the controls involved in x-ray beam production, emission, interactions in matter and capture at the image receptor
2. Outline the basic construction and operation of x-ray units and digital radiographic image acquisition systems
3. Discuss fundamental attributes of radiographic image appearances such as visibility, brightness, contrast, unsharpness, and distortion
4. Relate the concepts of beam control, differential attenuation, and scatter control to the production and appearances of a projection radiograph
5. Relate core concepts of bioeffects of low-level ionising radiation and current scientific theories of radiation risk to radiation protection practices in radiography.

This unit supports students in the attainment of the following Competency Standards of the Council on Chiropractic Education Australasia:

1.1 Complies with legal and ethical requirements

- Adheres to relevant legislation, common law, codes, standards and other policy regulating chiropractic conduct and practice

1.4 Demonstrates professional integrity

- Applies principles of risk management and quality improvement to practice

3.3 Obtains the results of clinical, laboratory and other diagnostic procedures necessary to inform care

- Refers for or conducts imaging where clinically indicated

3.5 Critically analyses information available to generate a clinical impression

- Demonstrates knowledge of diagnostic imaging techniques and procedures, including indications and limitations of available imaging modalities

Alignment of Learning Outcomes, Assessment and Graduate Attributes



Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes				
	1	2	3	4	5
1 - Report - 30%	•		•	•	
2 - Online Test - 20%		•			
3 - Online Test - 50%	•	•	•		•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
1 - Communication	•	•	•	•	•

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
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					

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Report - 30%	•	•				•				
2 - Online Test - 20%	•									
3 - Online Test - 50%	•							•		

Textbooks and Resources

Textbooks

MEDI12008

Prescribed

Radiographic Imaging and Exposure

Edition: 6th (2020)

Authors: Terri L Fauber

Elsevier

St. Louis , Missouri , USA

ISBN: 9780323661393

Students may purchase the hard copy textbook from the University Bookshop. The eBook ISBN: 9780323673075 is not available through the publisher for distribution in Australia but may be purchased through Amazon Australia's Kindle store.

[View textbooks at the CQUniversity Bookshop](#)

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: [American Psychological Association 7th Edition \(APA 7th edition\)](#)

For further information, see the Assessment Tasks.

Teaching Contacts

Reshmi Kumar Unit Coordinator

r.d.kumar@cqu.edu.au

Schedule

Week 1 - 08 Jul 2024

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to the unit and underlying physics <ul style="list-style-type: none">• Introduction to radiography & overview of radiographic imaging process• Matter, energy, work & power• Newtons Laws• Heat transfer• Atomic structure & binding energy• Electromagnetic energy & properties of radiation• Inverse Square Law (ISL)	Fauber Chapter 1 <ul style="list-style-type: none">• Refer to Moodle for specific pages and any additional readings	Tutorial 1

Week 2 - 15 Jul 2024

Module/Topic	Chapter	Events and Submissions/Topic
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Electricity and Intro to the x-ray machine

- Basic electrical concepts
- Basics of electrical circuits
- X-ray tube construction (Overview, Tube envelop, Anode assembly, Cathode assembly & Tube housing)
- Basic x-ray circuit
- X-ray tube operation

Fauber Chapter 2
• Refer to Moodle for specific pages and any additional readings.

Tutorial 2

Week 3 - 22 Jul 2024

Module/Topic

Chapter

Events and Submissions/Topic

X-ray tube technical factors and X-ray Production

- Tube voltage, Tube current & Exposure time
- Milliampere-seconds (mAs) & Focal spot settings
- Introduction to x-ray production
- Production of x-rays (Bremsstrahlung & Characteristic)
- The x-ray beam spectrum

Fauber Chapter 2
• Refer to Moodle for specific pages and any additional readings.

Tutorial 3

Week 4 - 29 Jul 2024

Module/Topic

Chapter

Events and Submissions/Topic

X-ray beam output and tube life

- X-ray quantity and quality
- Focal spot size and Line focus principle
- Anode heel effect
- Beam filtration
- Heat production and dissipation in x-ray tube
- Heat loading on the anode
- Technical factor selection and tube ratings
- Best practices for extending tube life

Fauber Chapter 2
• Refer to Moodle for specific pages and any additional readings.

Tutorial 4

Online Test 1 Due: Week 4 Friday (2 Aug 2024) 8:00 pm AEST

Week 5 - 05 Aug 2024

Module/Topic

Chapter

Events and Submissions/Topic

X-ray interactions in matter

- Excitations and ionisations
- Photoelectric effect
- Compton scattering
- Probabilities of x-ray interactions with matter

Fauber Chapter 3
• Refer to Moodle for specific pages and any additional readings.

Tutorial 5

Vacation Week - 12 Aug 2024

Module/Topic

Chapter

Events and Submissions/Topic

University break week

Week 6 - 19 Aug 2024

Module/Topic

Chapter

Events and Submissions/Topic

X-ray Beam Attenuation and Transmission

- Stopping power of a material
- Exponential attenuation
- Ray paths and remnant beam
- Factors affecting attenuation
- Differential absorption
- Subject contrast and image contrast

Fauber Chapter 3
• Refer to Moodle for specific pages and any additional readings.

Tutorial 6

Week 7 - 26 Aug 2024

Module/Topic

Chapter

Events and Submissions/Topic

Visibility of image information

- Introduction to image quality
- Contrast resolution
- Image noise and signal-to-noise ratio (SNR)
- Scatter
- Distortion
- Unsharpness

Fauber Chapter 3
 • Refer to Moodle for specific pages and any additional readings.

Tutorial 7

Week 8 - 02 Sep 2024**Module/Topic****Chapter****Events and Submissions/Topic****Control of image appearances**

- Control of visibility on radiographs
- Collimation
- Grids
- Air gap technique
- Automatic exposure control
- Exposure latitude and dynamic range
- Exposure index and deviation index
- Accuracy of structural information on radiographs

Fauber Chapters 3, 6 & 7
 • Refer to Moodle for specific pages and any additional readings.

Tutorial 8

Week 9 - 09 Sep 2024**Module/Topic****Chapter****Events and Submissions/Topic****Digital imaging technology**

- Introduction to digital radiography
- Image receptor systems (structure & operation)
- Digital matrix, FOV and pixels
- Creation of digital image file

Fauber Chapter 4
 • Refer to Moodle for specific pages and any additional readings.

Tutorial 9

Radiation Production and Imaging Report Due: Week 9 Monday (9 Sept 2024) 4:00 pm AEST

Week 10 - 16 Sep 2024**Module/Topic****Chapter****Events and Submissions/Topic****Digital image processing and viewing**

- Introduction to image processing
- Image histogram
- Image enhancement
- Display and viewing of radiographs
- Ensuring digital image quality (windowing, zoom, control of spatial and contrast resolution)

Fauber Chapter 4
 • Refer to Moodle for specific pages and any additional readings.

Tutorial 10

Week 11 - 23 Sep 2024**Module/Topic****Chapter****Events and Submissions/Topic****Radiation bioeffects and protection**

- Introduction to radiation bioeffects
- Effects of radiation on cells
- Categories of radiation effects
- Carcinogenesis
- Radiation during pregnancy
- Introduction to radiation protection
- Radiation protection responsibilities
- Radiation protection in clinical practice

Fauber Chapters 1 & 8, Appendix C
 • Refer to Moodle for specific pages and any additional readings.

Tutorial 11

Week 12 - 30 Sep 2024**Module/Topic****Chapter****Events and Submissions/Topic**

- Consolidation and integration of core concepts.

Tutorial 12

Review/Exam Week - 07 Oct 2024

Module/Topic	Chapter	Events and Submissions/Topic
		Final Online Test Due: Review/Exam Week Tuesday (8 Oct 2024) 8:00 pm AEST

Term Specific Information

This unit has been developed by a cross-disciplinary team to provide expertise from both the radiographic and chiropractic perspectives. The unit provides the science foundation for your study of radiographic technique in Year 3 of your clinical practice in your Masters study. You are required to complete this unit as per the professional accreditation requirements set by the Chiropractic Board of Australia (CBA) and Australian Health Practitioner's Registration Agency (AHPRA).

You are provided with a set of learning goals for each week's topics to communicate the breadth and depth of the knowledge and skills you are required to demonstrate in the unit assessments. Lectures are provided as pre-recorded videos via the unit Moodle site. You will have weekly online tutorials to discuss assigned questions on that week's learning. A review and consolidation tutorial will be held in Week 12 to consolidate and integrate core concepts learned during the term. Tutorials are interactive sessions where your participation enables you to check your understanding of and your ability to apply the week's concepts and for you to build your skills in responding to test questions. Your regular participation strongly supports your success in the unit. While online tutorials will be recorded, these recordings are not intended to replace your active participation in live sessions.

You are expected to spend an average of 10-12 hours each week in your study activities for this unit. A suggested time budget for your weekly study is:

- 1 hour for completing assigned readings
- 2-3 hours for watching the recorded lectures
- 2 hours for creating study notes to meet the weekly learning goals using the recorded lectures and readings
- 1 hour for working on posted tutorial questions in preparation for the weekly tutorial
- 1 hour for participation in the tutorial
- 1 hour for completing other posted learning activities
- 2-3 hours for assignment preparation and/or revision for online tests

Assessment Tasks

1 Radiation Production and Imaging Report

Assessment Type

Report

Task Description

As future chiropractors, you will need to be able to make reasoned selections of technical parameters for the radiographs you produce that factor in your patient as well as the correct operation of your equipment.

You will create an electronic report that discusses the underlying science behind radiographic appearances and data obtained from virtual lab experiments. You will be provided with various images and sets of data associated with a series of experiments using radiographic imaging equipment to measure radiation beams in various circumstances and to image inanimate objects.

You will then answer a series of questions relating to those images and associated data. A Word template will be provided on the unit Moodle site to help you structure your submission. The specific questions you must address as well as the format and presentation of your electronic report will be posted on the unit Moodle site.

In addressing the required areas of discussion, you may choose to use resources to support your responses. These may include your text, resources that are provided on the unit Moodle site and/or others that you may find. (Note that lecture slides are visual accompaniment to a spoken presentation, so the slides are not appropriate to use as a standalone resource for this assessment).

Academic integrity standards still apply. All responses must be your own work. You may not consult with any other person via any means or accept any input or assistance from any other person, group or artificial intelligence (AI) regarding the report questions and your responses. Colluding with other students on non-group work is considered academic misconduct. You must acknowledge intellectual content in your answers that is not your own work. Basic statements of facts are considered 'common knowledge' in the context of this unit, so they do not need to be cited. However, if you copy any explanation content word-for-word from ANY source, you must put that content in quotation marks and formally cite your source. Your report must be submitted as a pdf document that can be analysed by Turnitin.

Assessment Due Date

Week 9 Monday (9 Sept 2024) 4:00 pm AEST

Return Date to Students

Week 11 Monday (23 Sept 2024)

Weighting

30%

Minimum mark or grade

50%

Assessment Criteria

Your report will be assessed on the following criteria:

- clarity and completeness of explanations and discussions in answering the required questions
- factual correctness of statements, explanations and discussions
- relevance of response content to the question asked
- correct use of terminology

Referencing Style

- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

Submission

Online

Submission Instructions

Your report must be submitted as a pdf document.

Learning Outcomes Assessed

- Discuss the underlying physical principles of and the controls involved in x-ray beam production, emission, interactions in matter and capture at the image receptor
- Discuss fundamental attributes of radiographic image appearances such as visibility, brightness, contrast, unsharpness, and distortion
- Relate the concepts of beam control, differential attenuation, and scatter control to the production and appearances of a projection radiograph

Graduate Attributes

- Communication
- Problem Solving
- Information Technology Competence

2 Online Test 1

Assessment Type

Online Test

Task Description

As you are students in a course that is accredited by your professional body, we must provide evidence that you have core knowledge and skill that underpins your ability to meet the Competency Standards of your profession. This includes knowledge of the underlying science of radiography and its application to safe and effective practice.

You will write an online test on Friday 2nd August 2024 in Week 4 to demonstrate your ability to apply the concepts and use the terminology from Weeks 1 - 3 of the unit. All questions will be based on the posted weekly learning goals for those weeks.

Question tasks will be of the same types that you will practice in tutorials. These question tasks may include analysis of diagrams, creation of line diagrams to illustrate concepts, explanations of concepts, application of concepts to specific scenarios, definitions and discussions. The weekly tutorials will provide you practice in analysing questions, formulating

responses and assessing the quality of your responses.

This test is of 60 minutes duration. This time duration factors in expected 55 minutes of writing time as well as adequate time to plan and type your answers, plus any potential lag in internet services.

This is a Moodle quiz. The test will be available from 8:00 am - 8:00 pm AEST. Once you access the test, you will have 60 minutes to complete it. You are given a single attempt, which means you cannot re-open the quiz once you have closed it. *The stated due date/time listed below is when the test availability will close in Moodle, so plan to start your test at least 60 minutes before that time.* If you start your test less than 60 minutes prior to the due date/time, your test will still close at 8:00 p.m.

To complete the test, ensure that you have use of a computer (PC or Mac) in good working order with adequate power/charged battery and reliable internet access. Use of a tablet device is not recommended as you will not be able to see all available information on the Moodle quiz screen.

This is an open book test. It means that during the test you may access your study notes, textbook, the unit Moodle site and/or any website. You may use that content in formulating your responses. However, the time allocated for completing the questions assumes familiarity with the unit material. You should not expect to have the time to look up answers to every question. Because this is an open-book test the emphasis is not on recall of facts but instead application of facts and concepts. The weekly learning goals tell you the specific ways that you are expected to integrate and apply concepts from the weekly content. We will practice many of these learning goal tasks in the weekly tutorials.

Your test responses must be your own work. The rules of academic integrity still apply. During the test you may not consult with any other person via any means (whether verbally, electronically or in writing) or accept any input or assistance from any other person, group or artificial intelligence (AI) regarding the test questions and your responses. You may not share the test content with any other person for any reason. You must acknowledge intellectual content in your answers that is not your own work. Basic statements of facts are considered 'common knowledge' in the context of this unit so they do not need to be cited. However, if you copy any explanation content word-for-word from ANY source, 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 rules of academic integrity and that you agree to abide by them. Any identified cases of potential collusion or cheating will result in a breach of academic integrity case being raised.

This test must be written at the timetabled date and time. There is no provision for a late submission and no late penalty can be applied. Please see Section 5 of the University's Assessment Policy and Procedure for details regarding Assessment Management, specifically around assessment extension. If you have an approved extension, you will be assigned a new test date and time as soon as possible after the original test date. It is your responsibility to ensure that you are available at that new assigned date/time. 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.

Assessment Due Date

Week 4 Friday (2 Aug 2024) 8:00 pm AEST

Return Date to Students

Results will be available 2 weeks after the test date.

Weighting

20%

Assessment Criteria

Question responses will be scored on the following criteria:

- factual correctness of content
- completeness in answering what was asked
- depth of explanation
- relevance of your response in addressing the question that was asked.

Marks for each question are listed on the Moodle screen. The number of marks are allocated based on the number of key points you are expected to make in answering the question. You should expect to make one key point of fact or logic for each mark. As a guide, a key point typically involves 1 - 2 sentences.

Referencing Style

- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

Submission

Online

Learning Outcomes Assessed

- Outline the basic construction and operation of x-ray units and digital radiographic image acquisition systems

Graduate Attributes

- Communication

3 Final Online Test

Assessment Type

Online Test

Task Description

You will write an online test on Tuesday 8th October in Week 13. The aim of the test is for you to demonstrate your ability to apply the concepts and use the terminology from the unit. All questions will be based on the posted weekly learning goals.

Question tasks will be of the same types that you will practice in tutorials. These question tasks may include analysis of diagrams (including radiographs and photographs), explanations of concepts, application of concepts to specific scenarios, definitions and discussions.

This test is 90 mins in duration. This time factors in perusal and planning time as well as writing time. The time allowed will provide adequate time to plan and type your answers, plus any potential lag of internet services.

This is a Moodle quiz. **The test will be available from 8:00 am - 8:00 pm AEST.** Once you access the test, **you will have 90 minutes to complete it.** You are given a single attempt, which means you cannot re-open the quiz once you have closed it. *The stated due date/time is when the test availability will close in Moodle, so plan to start your test at least 90 minutes before that time.* If you start your test less than 90 minutes prior to the due date/time, your test will still close at the 8:00 pm.

To complete the test, ensure that you have use of a computer (PC or Mac) in good working order with adequate power/charged battery and reliable internet access. Use of a tablet device is not recommended as you will not be able to see all available information on the Moodle quiz screen.

This is an open book test. It means that during the test you may access your study notes, textbook, the unit Moodle site and/or any website. You may use that content in formulating your responses. However, the time allocated for completing the questions assumes familiarity with the unit material. You should not expect to have the time to look up answers to every question. Because this is an open-book test the emphasis is not on recall of facts but instead application of facts and concepts. The weekly learning goals tell you the specific ways that you are expected to integrate and apply concepts from the weekly content. We will practice many of these learning goal tasks in the weekly tutorials.

Your test responses must be your own work. The rules of academic integrity still apply. During the test you may not consult with any other person via any means (whether verbally, electronically or in writing) or accept any input or assistance from any other person, group or artificial intelligence (AI) regarding the test questions and your responses. You may not share the test content with any other person for any reason. You must acknowledge intellectual content in your answers that is not your own work. Basic statements of facts are considered 'common knowledge' in the context of this unit so they do not need to be cited. However, if you copy any explanation content word-for-word from ANY source, 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 rules of academic integrity and that you agree to abide by them. Any identified cases of potential collusion or cheating will result in a breach of academic integrity case being raised.

This test must be written at the timetabled date and time. There is no provision for a late submission and no late penalty can be applied. Please see Section 5 of the University's Assessment Policy and Procedure for details regarding Assessment Management, specifically around assessment extension. If you have an approved extension, you will be assigned a new test date and time as soon as possible after the original test date. It is your responsibility to ensure that you are available at that new assigned date/time. 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.

Assessment Due Date

Review/Exam Week Tuesday (8 Oct 2024) 8:00 pm AEST

Return Date to Students

Results will be available 2 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 of content
- completeness in answering what was asked
- depth of explanation
- relevance of your response in addressing the question that was asked.

Marks for each question are listed on the Moodle screen. The number of marks are allocated based on the number of key points you are expected to make in answering the question. You should expect to make one key point of fact or logic for each mark. As a guide, a key point typically involves 1 - 2 sentences.

Referencing Style

- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

Submission

Online

Learning Outcomes Assessed

- Discuss the underlying physical principles of and the controls involved in x-ray beam production, emission, interactions in matter and capture at the image receptor
- Outline the basic construction and operation of x-ray units and digital radiographic image acquisition systems
- Discuss fundamental attributes of radiographic image appearances such as visibility, brightness, contrast, unsharpness, and distortion
- Relate core concepts of bioeffects of low-level ionising radiation and current scientific theories of radiation risk to radiation protection practices in radiography.

Graduate Attributes

- Communication
- Ethical practice

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