

# RADIOGRAPHY (RADI)

## **RADI 5001 Physics for Diagnostic Ultrasound (10 Credit Points)** **Subject Details (<https://hbook.westernsydney.edu.au/subject-details/radi5001/>)**

This subject introduces students to ultrasound physics, a key area of knowledge for sonographers. They will learn about the essential physical principles that underpin ultrasound imaging, extending from the basic principles of sound waves through to emerging technologies and applications. This subject provides an essential basis for future study in the Graduate Diploma in Sonography (Cardiac or Vascular).  
**Level:** Postgraduate Coursework Level 5 subject  
**Restrictions:** Please see the Subject Details page for any restrictions for this subject

## **RADI 6001 Pathophysiology in Diagnostic Ultrasound (10 Credit Points)** **Subject Details (<https://hbook.westernsydney.edu.au/subject-details/radi6001/>)**

This subject will develop a student's understanding of the abnormal anatomical features and pathophysiological processes that underpin frequently encountered diseases within both the Australian Indigenous and non-Indigenous populations in ultrasound practice. Common congenital, genetic and acquired diseases, alongside biofeedback mechanisms controlling homeostasis will be explored. Furthermore, the roles of key pharmacological agents for disease management will be examined.

**Level:** Postgraduate Coursework Level 6 subject  
**Pre-requisite(s):** RADI 5001 - Physics for Diagnostic Ultrasound  
**Restrictions:** Please see the Subject Details page for any restrictions for this subject

## **RADI 6002 Research Foundations for Sonography (10 Credit Points)** **Subject Details (<https://hbook.westernsydney.edu.au/subject-details/radi6002/>)**

Research Foundations in Sonography provides sonography students with foundational knowledge and experience in research. The subject is comprised of two modules: 1. Research Foundations. 2. Research Application. Module 1 includes topics such as evidence, research ethics and disseminating research. Module 2 includes quality assurance and research in the clinical context.

**Level:** Postgraduate Coursework Level 6 subject  
**Restrictions:** Please see the Subject Details page for any restrictions for this subject

## **RADI 7001 Advanced Principles and Practice of Sonography (10 Credit Points)** **Subject Details (<https://hbook.westernsydney.edu.au/subject-details/radi7001/>)** Legacy Code: 401247

This subject is an essential part of the final year of the Master of Sonography. It ensures that students advance the knowledge and skills gained in prior subjects as they select and study a contemporary ultrasound technique or technology. In clinical practice, students evaluate their use of the chosen technique or technology, and compose a narrative literature review on the same topic. Additionally, students have the opportunity to teach imaging skills to first year student sonographers, and write a reflection about their teaching experience.

**Level:** Postgraduate Coursework Level 7 subject  
**Pre-requisite(s):** RADI 7005 - Practice of Cardiac Sonography 4 Or RADI 7014 - Practice of Vascular Sonography 4 Or RADI 7022 - Practice of Obstetric and Gynecological Sonography 4  
**Restrictions:** Please see the Subject Details page for any restrictions for this subject

## **RADI 7002 Practice of Cardiac Sonography 1 (10 Credit Points)** **Subject Details (<https://hbook.westernsydney.edu.au/subject-details/radi7002/>)** Legacy Code: 401189

In this subject, students will learn how to acquire and optimise ultrasound images and to make key measurements. They will learn to draw conclusions about cardiac anatomy and function based on images and measurements and will develop their professional and ethical skills by learning how to plan and implement a cardiac ultrasound scan in a safe and ethical manner. The skills and knowledge learnt in this subject, which includes a work-integrated learning component, provide foundational skills in cardiac sonography.  
**Level:** Postgraduate Coursework Level 7 subject  
**Co-requisite(s):** RADI 5001 - Physics for Diagnostic Ultrasound  
**Restrictions:** Please see the Subject Details page for any restrictions for this subject

## **RADI 7003 Practice of Cardiac Sonography 2 (10 Credit Points)** **Subject Details (<https://hbook.westernsydney.edu.au/subject-details/radi7003/>)** Legacy Code: 401190

In this subject, students will develop their image acquisition, optimisation and measurement skills. They will learn to perform more extensive cardiac sonographic scan and will further develop their professional and ethical attributes. This subject, which includes a work-integrated learning component, will ensure the consolidation of foundational skills, knowledge and attributes.

**Level:** Postgraduate Coursework Level 7 subject  
**Pre-requisite(s):** RADI 5001 - Physics for Diagnostic Ultrasound RADI 7002 - Practice of Sonography 1 (Cardiac)  
**Co-requisite(s):** RADI 6001 - Pathophysiology in Diagnostic Ultrasound  
**Restrictions:** Please see the Subject Details page for any restrictions for this subject

## **RADI 7004 Practice of Cardiac Sonography 3 (10 Credit Points)** **Subject Details (<https://hbook.westernsydney.edu.au/subject-details/radi7004/>)** Legacy Code: 401191

This subject aims to further develop students' understanding of the essential aspects of working in a clinical environment and to consolidate their imaging skills. Students will learn to how to image a variety of lesions and diseases, including common adult congenital heart defects, systemic diseases that affect the heart, pericardial and pulmonary diseases and cardiac masses. Considerable time will be spent in the clinical environment refining imaging techniques, and students will prepare an evaluation of their imaging skills.

**Level:** Postgraduate Coursework Level 7 subject  
**Pre-requisite(s):** RADI 7003  
**Co-requisite(s):** RADI 7008  
**Restrictions:** Please see the Subject Details page for any restrictions for this subject

## **RADI 7005 Practice of Cardiac Sonography 4 (10 Credit Points)** **Subject Details (<https://hbook.westernsydney.edu.au/subject-details/radi7005/>)** Legacy Code: 401192

This subject aims to assure that students have gained adequate knowledge and skills to be able to practice competently, confidently and ethically as cardiac sonographers. Care for and communication with patients and colleagues, continual professional development (CPD) and exposure to advanced and leading edge imaging technologies will be given particular emphasis during this subject. Once more, considerable time will be spent in the clinical environment performing imaging skills and activities independently (as per special requirements).

**Level:** Postgraduate Coursework Level 7 subject  
**Pre-requisite(s):** RADI 7008 - Principles of Cardiac Sonography 3  
**Restrictions:** Please see the Subject Details page for any restrictions for this subject

**RADI 7006 Principles of Cardiac Sonography 1 (10 Credit Points)**

**Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7006/>) **Legacy Code:** 401185

In Autumn 2024, this subject replaced by RADI 5001 - Physics for Diagnostic Ultrasound. This subject introduces students to two key areas of knowledge for cardiac sonographers: 1) cardiac anatomy and physiology, and 2) ultrasound physics. Students will learn about the normal and abnormal anatomy and physiology of the human heart. They will also learn about the essential physical principles that underpin ultrasound imaging. This subject provides an essential basis for future study in the Graduate Diploma in Cardiac Sonography.

**Level:** Postgraduate Coursework Level 7 subject

**Restrictions:** Please see the Subject Details page for any restrictions for this subject

**RADI 7007 Principles of Cardiac Sonography 2 (10 Credit Points)**

**Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7007/>) **Legacy Code:** 401186

This subject will build on the knowledge acquired in Principles of Cardiac Sonography 1, via a blend of theoretical and practical activities. The students' understanding of cardiac anatomy and physiology will be extended, and they will begin studying cardiovascular diseases. Aspects of ultrasound physics studied in this subject include identifying imaging artifacts, recognizing equipment limitations, and bio-effects and safety.

**Level:** Postgraduate Coursework Level 7 subject

**Pre-requisite(s):** RADI 7006

**Restrictions:** Please see the Subject Details page for any restrictions for this subject

**RADI 7008 Principles of Cardiac Sonography 3 (10 Credit Points)**

**Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7008/>) **Legacy Code:** 401187

In 2024, this subject replaced by RADI 6002 - Research Foundations for Sonography. This subject will extend the knowledge students have gained from Principles of Cardiac Sonography 2. Students will utilise their knowledge of normal and abnormal cardiac anatomy and physiology to study congenital and acquired heart lesions. They will examine systemic, pulmonary and pericardial diseases and cardiac masses, analyse data from basic echocardiogram measurements, and learn case study research skills by undertaking a case report. The university library's vast resources will provide an important aid to learning in this subject.

**Level:** Postgraduate Coursework Level 7 subject

**Pre-requisite(s):** RADI 7007

**Restrictions:** Please see the Subject Details page for any restrictions for this subject

**RADI 7009 Principles of Cardiac Sonography 4 (10 Credit Points)**

**Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7009/>) **Legacy Code:** 401188

In Spring 2025, this subject will be replaced by RADI - 7025 - Applied Cardiac Sonography. This subject aims to assure that students have gained adequate knowledge and skills to be able to practice competently and confidently as cardiac sonographers. Students will learn about more complex heart dis-ease and how to detect them by echocardiography and other imaging modalities. They will further develop their research skills and start contributing to the sonographic practice through conducting a case project and presenting the report to the professional audience. The university library's vast teaching and research resources will provide an important means for facilitating learning in this subject.

**Level:** Postgraduate Coursework Level 7 subject

**Pre-requisite(s):** RADI 7008

**Restrictions:** Please see the Subject Details page for any restrictions for this subject

**RADI 7010 Research Project in Cardiac Sonography (20 Credit Points)**

**Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7010/>) **Legacy Code:** 401248

In 2021 this subject replaced by 401467 - Medical Research Project (PG). The primary aims of this subject are to: i. Design, and ii. Execute and complete, a research project based on the cardiac ultrasound technology chosen by the student in Advanced Principles and Practice of Cardiac Sonography. Successful completion of the subject results in the composition of a report, and in an oral presentation, which will include details of the aims, methods, results and conclusions of the project.

**Level:** Postgraduate Coursework Level 7 subject

**Pre-requisite(s):** HLTH 7008 AND

RADI 7001

**Restrictions:** Please see the Subject Details page for any restrictions for this subject

**RADI 7011 Practice of Vascular Sonography 1 (10 Credit Points)**

**Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7011/>) **Legacy Code:** 401293

This subject introduces students to the practice of vascular sonography. Students will learn how to acquire and optimise ultrasound images and to make basic measurements. In addition, they will learn to draw conclusions about vascular anatomy and function based on the images and measurements; and they will develop their professional and ethical skills through learning how to plan for and implement a vascular ultrasound examination in a safe and ethical manner. The skills learnt in this unit, which includes a work-integrated component, provide well-rounded, foundation skills in vascular sonography.

**Level:** Postgraduate Coursework Level 7 subject

**Co-requisite(s):** RADI 5001

**Restrictions:** Please see the Subject Details page for any restrictions for this subject

**RADI 7012 Practice of Vascular Sonography 2 (10 Credit Points)**

**Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7012/>) **Legacy Code:** 401295

Content in this subject will be an extension of the knowledge and skills developed in Practice of Sonography 1. Students will learn to perform more extensive vascular examinations and will develop their professional and ethical attributes. Learning in the subject, which includes a work-integrated learning component, will consolidate foundational vascular skills in vascular sonography.

**Level:** Postgraduate Coursework Level 7 subject

**Pre-requisite(s):** RADI 5001 - Physics for Diagnostic Ultrasound

RADI 7011 - Practice of Vascular Sonography 1

**Co-requisite(s):** RADI 6001 - Pathophysiology in Diagnostic Ultrasound

**Restrictions:** Please see the Subject Details page for any restrictions for this subject

**RADI 7013 Practice of Vascular Sonography 3 (10 Credit Points)**

**Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7013/>) **Legacy Code:** 401297

This subject aims to further develop students' understanding of the essential aspects of working in a clinical environment and will help to consolidate their imaging skills. Students will learn how to image a variety of arterial and venous pathologies. Considerable time will be spent in the clinical environment refining imaging techniques, and students will prepare and evaluation of their imaging skills.

**Level:** Postgraduate Coursework Level 7 subject

**Pre-requisite(s):** RADI 7012

**Co-requisite(s):** RADI 7017

**Restrictions:** Please see the Subject Details page for any restrictions for this subject

**RADI 7014 Practice of Vascular Sonography 4 (10 Credit Points)**

**Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7014/>) **Legacy Code:** 401299

This Subject aims to assure that students have gained adequate knowledge in the areas of abdominal vascular and venous insufficiency sonography to practice competently, confidently and ethically as vascular sonographers. Time spent in the clinical environment will be supported by hands on training one campus.

**Level:** Postgraduate Coursework Level 7 subject

**Pre-requisite(s):** RADI 7013

**Co-requisite(s):** RADI 7018

**Restrictions:** Please see the Subject Details page for any restrictions for this subject

**RADI 7015 Principles of Vascular Sonography 1 (10 Credit Points)**

**Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7015/>) **Legacy Code:** 401292

In Autumn 2024, this subject replaced by RADI 5001 - Physics in Diagnostic Ultrasound. In this subject, students will study two essential areas of knowledge for vascular sonographers: I. cardiovascular anatomy and physiology and II. ultrasound physics. The normal anatomy and physiology of the cardiovascular system, and the key physics principles utilized in ultrasound imaging will comprise the majority of the subject content. This subject provides an essential basis for future study in the Graduate Diploma in Vascular Sonography.

**Level:** Postgraduate Coursework Level 7 subject

**Co-requisite(s):** RADI 7011 - Practice of Vascular Sonography 1

**Restrictions:** Please see the Subject Details page for any restrictions for this subject

**RADI 7016 Principles of Vascular Sonography 2 (10 Credit Points)**

**Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7016/>) **Legacy Code:** 401294

This subject builds on the knowledge acquired in Principles of Vascular Sonography 1, via a blend of theoretical and practical activities. Students' knowledge of general pathology principles will be extended, and they will also cover the principles of coagulation and atherosclerotic disease. Aspects of ultrasound physics studies in this subject include identifying imaging artefacts, recognizing equipment limitations and bio-effects and safety. Basic vascular pharmacology is also covered.

**Level:** Postgraduate Coursework Level 7 subject

**Pre-requisite(s):** RADI 7015

**Co-requisite(s):** RADI 7011 - Practice of Vascular Sonography

**Restrictions:** Please see the Subject Details page for any restrictions for this subject

**RADI 7017 Principles of Vascular Sonography 3 (10 Credit Points)**

**Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7017/>) **Legacy Code:** 401296

This subject will extend the student's knowledge of cerebrovascular and peripheral vascular arterial disease, along with thrombotic venous disease. Students will learn essential research skills, for which the university's vast learning resources will provide an important aid.

**Level:** Postgraduate Coursework Level 7 subject

**Pre-requisite(s):** RADI 7016

**Co-requisite(s):** RADI 7013 - Practice of Vascular Sonography 3

**Restrictions:** Please see the Subject Details page for any restrictions for this subject

**RADI 7018 Principles of Vascular Sonography 4 (10 Credit Points)**

**Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7018/>) **Legacy Code:** 401298

In 2025, this subject replaced by RADI 7024 - Applied Vascular Sonography. This subject aims to provide students with adequate knowledge and skills to practice competently and safely as vascular sonographers. Students will learn about more specialised diseases and how to detect them using ultrasound and other imaging modalities. Research skills will also be developed and students will start contributing to a wider sonographic practice by conducting a case project and presenting the report to the professional audience. The university library's vast teaching and research resources will provide an important means for facilitating learning in this subject.

**Level:** Postgraduate Coursework Level 7 subject

**Pre-requisite(s):** RADI 7017

**Co-requisite(s):** RADI 7014 - Practice of Vascular Sonography 4

**Restrictions:** Please see the Subject Details page for any restrictions for this subject

**RADI 7019 Practice of Obstetric and Gynecological (O&G) Sonography 1 (10 Credit Points)**

**Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7019/>)

This subject introduces students to the practice of obstetric and gynecological (O&G) sonography. Students will learn how to acquire and optimise transabdominal ultrasound images and make key measurements. They will learn to draw conclusions about fetal and maternal anatomy and function based on images and measurements. In addition, students will develop their professional and ethical skills by learning how to plan and implement O&G ultrasounds in a safe and ethical manner. The skills and knowledge learnt in this subject, which includes work-integrated learning, provide foundational clinical and professional skills in O&G sonography.

**Level:** Postgraduate Coursework Level 7 subject

**Co-requisite(s):** RADI 5001 - Physics for Diagnostic Ultrasound

**Restrictions:** Please see the Subject Details page for any restrictions for this subject

**RADI 7020 Practice of Obstetric and Gynecological (O&G) Sonography 2 (10 Credit Points)**

**Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7020/>)

In this subject, students will continue to develop their image acquisition, optimisation and measurement skills in O&G sonography. They will learn to perform a transvaginal examination to assess the gravid and non-gravid female pelvis. Critique of scanning protocols will allow students to deliver sonographic examinations that address a clinical indication. Students will investigate methods for conveying clinical information and maintaining patient confidentiality and privacy. An applied understanding of medical ethics, workplace health and safety, and reflection frameworks will enhance the provision of high-quality patient care. The subject, which includes a work-integrated learning component, will ensure the consolidation of foundational skills, knowledge and attributes.

**Level:** Postgraduate Coursework Level 7 subject

**Pre-requisite(s):** RADI 7019 - Practice of Obstetric and Gynecological (OG) Sonography 1

**Co-requisite(s):** RADI 6001 - Pathophysiology in Diagnostic Ultrasound

**Restrictions:** Please see the Subject Details page for any restrictions for this subject

**RADI 7021 Practice of Obstetric and Gynecological (O&G) Sonography 3 (10 Credit Points)****Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7021/>)

In this subject, students will enhance their skills in image acquisition, optimisation, and measurement. They will learn to identify crucial features of fetal and maternal anatomy and physiology required to perform a comprehensive O&G sonographic assessment. Additionally, students will explore effective communication techniques for delivering adverse findings, managing workplace relationships, and meeting patient expectations. They will collaborate with peers and incorporate feedback to deliver a multimedia presentation to a professional audience with confidence. The subject also includes a work-integrated learning component to promote the development of skills, knowledge, and attributes.

**Level:** Postgraduate Coursework Level 7 subject**Pre-requisite(s):** RADI 7020 - Practice of O G Sonography 2**Co-requisite(s):** RADI 6002 - Research Foundations for Sonography**Restrictions:** Please see the Subject Details page for any restrictions for this subject**RADI 7022 Practice of Obstetric and Gynecological (O&G) Sonography 4 (10 Credit Points)****Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7022/>)

In this subject, students will polish their image acquisition, optimisation and measurement skills and learn to perform extended O&G examinations. They will learn to differentiate normal from abnormal anatomical and physiological features by appraising acquired images of fetal anomalies and female pelvic pathologies. Students will strengthen their professional communication skills and ethical attributes by exploring methods for dissemination information and providing high quality patient care. They will reflect on personal sonography practice to enhance clinical skills and plan for further professional development. The subject, which includes a work-integrated learning component, will confirm their professional skills, knowledge and attributes.

**Level:** Postgraduate Coursework Level 7 subject**Pre-requisite(s):** RADI 7021 - Practice of OG Sonography 3**Co-requisite(s):** RADI 7023 - Applied OG Sonography**Restrictions:** Please see the Subject Details page for any restrictions for this subject**RADI 7023 Applied Obstetric and Gynecological (O&G) Sonography (10 Credit Points)****Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7023/>)

This subject aims to provide students with discipline-specific knowledge and skills to practice as a proficient confident O&G sonographer. Within this subject, students will be provided with opportunities to interact with experts in the field to promote a deep appreciation for the broad application of O&G sonography. Students will explore O&G procedures and imaging technologies complementary to clinical decision making. They will learn to enhance clinical practice by considering paediatric and general ultrasound applications relevant to fetal and maternal complications and disease.

**Level:** Postgraduate Coursework Level 7 subject**Pre-requisite(s):** RADI 6002 - Research Foundations for Sonography

RADI 7021 - Practice of OG Sonography 3

**Co-requisite(s):** RADI 7022 - Practice of OG Sonography 4**Restrictions:** Please see the Subject Details page for any restrictions for this subject**RADI 7024 Applied Vascular Sonography (10 Credit Points)****Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7024/>)

This subject aims to provide students with adequate knowledge and skills to practice competently and safely as vascular sonographers. Students will learn about more specialised diseases and how to detect them using ultrasound and other imaging modalities. Students will start contributing to a wider sonographic practice by conducting a case project and presenting the report to the professional audience. The university library's vast teaching and research resources will provide an important means for facilitating learning in this subject.

**Level:** Postgraduate Coursework Level 7 subject**Pre-requisite(s):** RADI 7013 - Practice of Vascular Sonography 3**Co-requisite(s):** RADI 7014 - Practice of Vascular Sonography 4**Restrictions:** Please see the Subject Details page for any restrictions for this subject**RADI 7025 Applied Cardiac Sonography (10 Credit Points)****Subject Details** (<https://hbook.westernsydney.edu.au/subject-details/radi7025/>)

Applied Cardiac Sonography provides students with discipline specific knowledge and skills. The subject is comprised of three modules: 1. Stress and Emergency Echocardiography, which predominantly involves the application of echocardiography to evaluate ischaemic heart disease, 2. Advanced Echocardiographic Technologies, that includes myocardial strain and 3-D imaging, and 3. Cardiac Interventions and Other Imaging Modalities, which involves the comparison of different interventions and imaging modalities.

**Level:** Postgraduate Coursework Level 7 subject**Pre-requisite(s):** RADI 7008 - Principles of Cardiac Sonography 3**Restrictions:** Please see the Subject Details page for any restrictions for this subject