



Position Description

College/Division:	College of Science
Faculty/School/Centre:	Research School of Physics (RSPhys)
Department/Unit:	Department of Materials Physics
Position Title:	Mechatronic Engineer
Classification:	ANU Officer Grade 5/6 (Engineering)
Position No:	TBC
Responsible to:	Matt Shadwell (Senior Engineer, DMP)
Number of positions that report to this role:	Nil
Delegation(s) Assigned:	Nil

PURPOSE STATEMENT:

The ANU College of Science (CoS) encompasses the disciplines of: Astronomy, Biology, Chemistry, Earth Sciences, Environment and Society, Mathematics, Physics, Science Communication and is also home to cross-disciplinary and specialist Institutes and Centres. Staff and students within the ANU College of Science conduct research and deliver a research-led education program that encompasses the entire breadth of the sciences, supported by extensive international networks and by world-class facilities.

The Research School of Physics represents Australia's largest university based research and teaching activity in the physics discipline. Hundreds of academics, technical staff and students form the School's greatest asset, its people. This critical mass of researchers is of fundamental importance in fostering the kind of interdisciplinary interactions that create modern research excellence.

KEY ACCOUNTABILITY AREAS:

Position Dimension & Relationships:

The role is required to support the delivery of the new signed program, which includes a specific milestone to design, optimize, test and assemble two bespoke computed tomography (CT) systems for 3D imaging of iron ore, critical minerals and processed metallurgical core material at large and intermediate scales. A key part of the program requires ANU to test and develop bespoke hardware solutions for the mineral industry. This role will augment the team led by Mr. Matt Shadwell to work with the Rio-funded engineering design team, workshop staff, the research group, and industry partners in delivering the hardware solutions.

Role Statement:

Under the general direction of the Senior Engineer, the Mechatronic Engineer will:

- Design and implement electronic and electromechanical systems which contribute to new and existing scientific instruments.
- Apply a body of broad technical knowledge and practical skills to complex engineering projects
- Contribute to the assigned project tasks, and manage, under direction, tasks to ensure activities are delivered in a cost effective manner within agreed costs and schedules.
- Comply with the X-ray Tomography Group's design principles and technical management procedures to ensure optimum results for complex, multi-disciplinary projects.
- Apply training and experience to solve engineering problems and design tests to undertake assembly integration and testing of prototype and deliverable hardware.
- Prepare technical documentation.
- Maintain a working knowledge both of best-practice engineering procedures in the context of prototype and one-off systems, and an awareness of relevant state-of-the-art technologies for high precision data acquisition and control systems applied to scientific instruments.
- Undertake other duties as required from time to time consistent with the classification level of the position.

- Comply with all ANU policies and procedures, and in particular those relating to work health and safety and equal opportunity

SELECTION CRITERIA:

1. Graduate qualification in Engineering plus relevant experience, or an equivalent combination of relevant experience in a technical role and relevant education/training.
2. Experience in electronic or mechatronic design is essential. Low level programming (e.g. C, Arduino, Python), motion controller or PLC knowledge all highly desirable.
3. Demonstrated experience in complex electronic or mechatronic systems design including requirements development, design, prototyping, build/manufacture and system validation is highly desirable.
4. Experience in testing of complex systems, preferably in the context of instrumentation and research.
5. Demonstrated experience working in a multi-disciplinary team.
6. Proven level of written communication skills, including the ability to produce technical documentation for manufacture, assembly and maintenance.
7. Demonstrated interpersonal and oral communication skills, including the ability to consult, and liaise effectively with a range of stakeholders, customers, industry partners, suppliers and contractors.
8. Proven ability to work flexibly, prioritise work to meet conflicting deadlines, and to quickly adapt to new environments including a demonstrated ability to use initiative, apply sound judgement and work with minimum supervision individually and within team environment.
9. A demonstrated high level of understanding of equal opportunity (EO) principles and a commitment to the application of EO policies in a university context.

ANU Officer Levels 5 and 6 are broadbanded in this stream. It is expected that at the higher levels within the broadband occupants will have a deeper understanding, and a more independent application, of the research theory and techniques.

The ANU conducts background checks on potential employees, and employment in this position is conditional on satisfactory results in accordance with the [Background Checking Procedure](#) which sets out the types of checks required by each type of position.

Supervisor/Delegate Name:	Matt Shadwell	Date:	August 2024
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References:

[Professional Staff Classification Descriptors](#)

[Academic Minimum Standards](#)



Pre-Employment Work Environment Report

Position Details

College/Div/Centre	College of Science	Dept/School/Section	Dept. Material Physics
Position Title	Mechatronic Engineer	Classification	ANU Officer 5/6
Position No.	TBC	Reference No.	N/A

In accordance with the Work Health and Safety Act 2011 (Cth) the University has a primary duty of care, so far as reasonably practicable, to ensure the health and safety of all staff while they are at work in the University.

- This form must be completed by the supervisor of the advertised position and appended to the back of the Position Description.
- This form is used to advise potential applicants of work environment and health and safety hazards prior to application.
- Once an applicant has been selected for the position they must familiarise themselves with the University WHS Management System via Handbook guidance <https://services.anu.edu.au/human-resources/health-safety/whs-management-system-handbook>
- The hazards identified below are of generic nature in relation to the position. It is not correlated directly to training required for the specific staff to be engaged. Identification of individual WHS training needs must be in accordance with WHS Local Training Plan and through the WHS induction programs and Performance Development Review Process.
- 'Regular' hazards identified below must be listed as 'Essential' in the Selection Criteria - see 'Employment Medical Procedures' at http://info.anu.edu.au/Policies/_DHR/Procedures/Employment_Medical_Procedures.asp

Potential Hazards

<ul style="list-style-type: none"> • Please indicate whether the duties associated with appointment will result in exposure to any of the following potential hazards, either as a regular or occasional part of the duties. 							
TASK	regular	occasional		TASK	regular	occasional	
key boarding	<input checked="" type="checkbox"/>	<input type="checkbox"/>		laboratory work	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
lifting, manual handling	<input type="checkbox"/>	<input checked="" type="checkbox"/>		work at heights	<input type="checkbox"/>	<input type="checkbox"/>	
repetitive manual tasks	<input type="checkbox"/>	<input type="checkbox"/>		work in confined spaces	<input type="checkbox"/>	<input type="checkbox"/>	
Organizing events	<input type="checkbox"/>	<input type="checkbox"/>		noise / vibration	<input type="checkbox"/>	<input type="checkbox"/>	
fieldwork & travel	<input type="checkbox"/>	<input checked="" type="checkbox"/>		electricity	<input type="checkbox"/>	<input type="checkbox"/>	
driving a vehicle	<input type="checkbox"/>	<input checked="" type="checkbox"/>					
NON-IONIZING RADIATION				IONIZING RADIATION			
solar	<input type="checkbox"/>	<input type="checkbox"/>		gamma, x-rays	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
ultraviolet	<input type="checkbox"/>	<input type="checkbox"/>		beta particles	<input type="checkbox"/>	<input type="checkbox"/>	
infra red	<input type="checkbox"/>	<input type="checkbox"/>		nuclear particles	<input type="checkbox"/>	<input type="checkbox"/>	
laser	<input type="checkbox"/>	<input type="checkbox"/>					
radio frequency	<input type="checkbox"/>	<input type="checkbox"/>					
CHEMICALS				BIOLOGICAL MATERIALS			
hazardous substances	<input type="checkbox"/>	<input checked="" type="checkbox"/>		microbiological materials	<input type="checkbox"/>	<input type="checkbox"/>	
allergens	<input type="checkbox"/>	<input type="checkbox"/>		potential biological allergens	<input type="checkbox"/>	<input type="checkbox"/>	
cytotoxics	<input type="checkbox"/>	<input type="checkbox"/>		laboratory animals or insects	<input type="checkbox"/>	<input type="checkbox"/>	
mutagens/teratogens/ carcinogens	<input type="checkbox"/>	<input type="checkbox"/>		clinical specimens, including blood	<input type="checkbox"/>	<input type="checkbox"/>	
pesticides / herbicides	<input type="checkbox"/>	<input type="checkbox"/>		genetically-manipulated specimens	<input type="checkbox"/>	<input type="checkbox"/>	
				immunisations	<input type="checkbox"/>	<input type="checkbox"/>	
OTHER POTENTIAL HAZARDS (please specify):							
Supervisor/Delegate:	<i>Matt Shadwell</i>			Date:	<i>August 2024</i>		