



## Position Description

<b>College/Division:</b>	College of Science
<b>Faculty/School/Centre:</b>	Research School of Physics
<b>Department/Unit:</b>	Department of Material Physics
<b>Position Title:</b>	Senior Mechanical Engineer
<b>Classification:</b>	Senior Manager 1
<b>Position No:</b>	TBA
<b>Responsible to:</b>	Professor Mark Knackstedt
<b>Number of positions that report to this role:</b>	TBA
<b>Delegation(s) Assigned:</b>	N/A

### PURPOSE STATEMENT:

The ANU X-ray Tomography Group has a long history of designing and building state-of-the-art scientific measurement equipment for characterizing a variety of materials from natural resources such as ores and minerals, advanced engineering materials such as composites and natural artefacts such as fossils. Such is the success of the group in developing this equipment that one of its most well known products – the Heliscan was licenced to ThermoFisher Scientific and is being sold commercially worldwide. The Group is the most industry engaged and commercially active part of the University and its current industry partners are driving a requirement for more advances in instrumentation design, development and production. This position aims to source a mechanical design and engineering specialist who can work with the research group and industry partners to drive the development of new products.

### KEY ACCOUNTABILITY AREAS:

#### Position Dimension & Relationships:

Under the broad direction of the Group Research Leaders, the Senior Mechanical Engineer provides design, development, validation, and maintenance expertise for technical projects and activities. A close working relationship is required with engineers working on current projects as well technical staff in the School's workshops. The Senior Mechanical Engineer will follow School technical management procedures to ensure optimum results for complex, multi-disciplinary instrumentation projects, working together with industry partners and the needs of associated research projects. The Senior Mechanical Engineer will also be expected to maintain an up-to-date knowledge of awareness of state-of-the-art technology in the field and may be required to function in a matrix project management structure under the daily direction of Group Research Leaders.

#### Role Statement:

Under the broad direction of the Group Research Leaders, the Senior Mechanical Engineer will:

- Lead and manage complex mechanical engineering assignments from concept through to implementation, entailing technical specifications, detailed planning and supervision of internal and external technical personnel.
- Develop budgets, manpower requirements and schedules for assigned projects and project tasks, within requirements of contracts, and manage and oversee the mechanical engineering budget to mitigate risks and ensure that projects are delivered in a cost effective manner within schedules.
- Maintain a working knowledge both of best-practice engineering procedures in the context of prototype and one-off constructions, and an awareness of relevant state-of-the-art technologies that might be applied to scientific measurement equipment within the context of the School's engineering management procedures.
- Undertake the mechanical engineering design of complex new instruments, with or without technical guidance, and using a high level of expertise.
- Provide a high level of engineering advice to the Group Research Leaders, facilitate interdisciplinary design solutions, and provide guidance and mentoring to design engineers and technical support staff.

- Lead or contribute to the commissioning, enhancement, and optimizing of instrumentation.
- Analyse mechanical project proposals and advise on their feasibility, cost, and resource implications.
- Prepare technical documentation and descriptive articles for general publication.
- Maintain an awareness of and help promote Work Health and Safety (WH&S), Equal Employment Opportunity (EEO) and other policy priorities of the university.
- Comply with all ANU policies and procedures, and in particular those relating to work health and safety and equal opportunity
- Perform other duties consistent with the classification of the position.

**SELECTION CRITERIA:**

- Eligibility for membership of Engineers Australia or progress towards postgraduate qualifications, plus extensive relevant practical experience OR an equivalent combination of relevant experience and/or education/training. Experience working in structured system engineering environments is highly desirable.
- Strong background and extensive experience in precision mechanical design, complex mechanism design, system validation techniques and maintenance of mechanical systems, including the use of modern approaches for integrating precision motion control with mechanical constructions
- Demonstrated proficiency and experience in computer assisted design, including integration of optical, thermal, and mechanical (including FEA) design approaches and proficiency with Autodesk Inventor. Work with high pressure and high temperature design would be desirable.
- Demonstrated capacity to develop and implement major projects in the specialist area of precision mechanical systems, preferably at advanced scientific measurement equipment; and experience in working closely and effectively with industry partners, suppliers and contractors.
- Excellent interpersonal and communication skills, both written and oral, including the ability to consult, negotiate and liaise effectively with a range of stakeholders, including demonstrated ability to document work, make oral presentations and prepare design review documents and presentations.
- Experience in supervision, mentoring and training of technical support staff and proven ability to work flexibly, prioritise work to meet conflicting deadlines, and to quickly adapt to new environments. Demonstrated ability to use initiative, apply sound judgement and work with minimum supervision individually and within a team environment.
- A demonstrated understanding of equal opportunity principles and policies and a commitment to their application in a university context.

*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.*

<b>Supervisor/Delegate Name:</b>	<b>Professor Mark Knackstedt</b>	<b>Date:</b>	<b>October 2022</b>
----------------------------------	----------------------------------	--------------	---------------------

**References:**

[General Staff Classification Descriptors](#)



# Pre-Employment Work Environment Report

## Position Details

College/Div/Centre	College of Science	Dept/School/Section	RSPHys
Position Title	Senior Mechanical Engineer	Classification	Senior Manager 1
Position No.		Reference No.	

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](http://info.anu.edu.au/Policies/_DHR/Procedures/Employment_Medical_Procedures.asp)

## Potential Hazards

<ul style="list-style-type: none"> <li>Please indicate whether the duties associated with appointment will result in exposure to any of the following potential hazards, either as a <b>regular</b> or <b>occasional</b> part of the duties.</li> </ul>			
<b>TASK</b>	<b>regular</b>	<b>occasional</b>	
key boarding	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
lifting, manual handling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
repetitive manual tasks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Organizing events	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
fieldwork & travel	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
driving a vehicle	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>NON-IONIZING RADIATION</b>			
solar	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
ultraviolet	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
infra red	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
laser	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
radio frequency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>CHEMICALS</b>			
hazardous substances	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
allergens	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
cytotoxics	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
mutagens/teratogens/	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
carcinogens			
pesticides / herbicides	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>TASK</b>	<b>regular</b>	<b>occasional</b>	
laboratory work	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
work at heights	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
work in confined spaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
noise / vibration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
electricity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>IONIZING RADIATION</b>			
gamma, x-rays	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
beta particles	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
nuclear particles	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>BIOLOGICAL MATERIALS</b>			
microbiological materials	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
potential biological allergens	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
laboratory animals or insects	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
clinical specimens, including blood	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
genetically-manipulated specimens	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
immunisations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>OTHER POTENTIAL HAZARDS (please specify):</b>			
Supervisor/Delegate Name:	Professor Mark Knackstedt	Date:	October 2022