

## POSITION DESCRIPTION

<b>Position Title:</b>	Senior R&D Engineering Technician/Mechatronic Engineer
<b>Organisation Unit:</b>	Centre for Microscopy and Microanalysis
<b>Position Number:</b>	New
<b>Type of Employment:</b>	Full time, Fixed Term (3 years)
<b>Classification:</b>	HEW 7

## THE UNIVERSITY OF QUEENSLAND

The University of Queensland (UQ) contributes positively to society by engaging in the creation, preservation, transfer and application of knowledge. UQ helps shape the future by bringing together and developing leaders in their fields to inspire the next generation and to advance ideas that benefit the world. UQ strives for the personal and professional success of its students, staff and alumni. For more than a century, we have educated and worked with outstanding people to deliver **knowledge leadership for a better world**.

UQ ranks in the world's top universities, as measured by several key independent ranking, including the CWTS Leiden Ranking (32), the Performance Ranking of Scientific Papers for World Universities (40), the US News Best Global Universities Rankings (42), QS World University Rankings (47), Academic Ranking of World Universities (54), and the Times Higher Education World University Rankings (66). Excluding the award component, UQ is now ranked 45<sup>th</sup> in the world in the ARWU, and is one of the only two Australian universities to be included in the global top 50.

UQ has an outstanding reputation for the quality of its teachers, its educational programs and employment outcomes for its students. Our students remain at the heart of what we do. The UQ experience – the UQ Advantage – is distinguished by a research enriched curriculum, international collaborations, industry engagement and opportunities that nurture and develop future leaders. UQ has a strong focus on teaching excellence, winning more national teaching excellence awards than any other in the country and attracting the majority of Queensland's highest academic achievers, as well as top interstate and overseas students.

UQ is one of Australia's Group of Eight, a charter member of edX and a founding member of Universitas 21, an international consortium of leading research-intensive universities.

Our 53,000-plus strong student community includes more than 16,400 postgraduate scholars and more than 17,000 international students from 135 countries, adding to its proud 260,000-plus alumni. The University has more than 6,600 academic and professional staff (full-time equivalent) and a \$2.15 billion annual operating budget. Its major campuses are at St Lucia, Gatton and Herston, in addition to teaching and research sites around Queensland and Brisbane city. The University has six Faculties and four University-level Institutes. The Institutes, funded by government and industry grants, philanthropy and commercialisation activities, have built scale and focus in research areas in neuroscience, biomolecular and biomedical sciences, sustainable minerals, bioengineering and nanotechnology, as well as social science research.

UQ has an [outstanding track-record](#) in commercialisation of our innovation with major technologies employed across the globe and integral to gross product sales of \$11billion+.

UQ has a rapidly growing record of attracting philanthropic support for its activities and this will be a strategic focus going forward.

## **Organisational Environment**

The Centre for Microscopy and Microanalysis (CMM) has a world standard laboratory equipped with state-of-the-art instrumentations and techniques in electron and X-ray microscopy and analysis. The Centre has a wide range of cutting edge instruments and techniques including, conventional and cryo electron microscopes, cs corrected S/TEM, X-ray analysis instrumentation, electron based nano-fabrication tools as well sample preparation facilities for material and life science and data processing workflows. The centre provides leading edge capability in microstructural analysis to the staff and students across a broad range of disciplines at the University of Queensland.

The Centre's strengths lie in training clients in relevant techniques and in solving characterisation problems relevant to a wide range of industrial, environmental and biological processes.

Information about the Centre for Microscopy and Microanalysis may be accessed on the Centre's web site at <https://cmm.centre.uq.edu.au/home>

CMM is one of the founding members of Microscopy Australia (formerly known as AMMRF - the Australian Microscopy and Microanalysis Research Facility). As part of this federal network, we have close collaborations between the different nodes across the country, especially in developing new ways and instrumentation for characterizing materials. Microscopy Australia is a national grid of university-based microscopy and microanalysis laboratories, that is led by the University of Sydney, and which provides open access to world-class instrumentation and expertise in material characterization capability to all Australian researchers.

Funded by the Commonwealth government under the National Collaborative Research Infrastructure Strategy (NCRIS), relevant state governments and with co-investment by the institutional partners, Microscopy Australia's mission is to enable world-class outcomes from Australian research by providing the essential infrastructure for the characterization of materials at the micro, nano, and atomic scales.

Comprising nine core institutions with linkages to another five laboratories, Microscopy Australia is a large collaborative research infrastructure facility governed as an unincorporated joint venture that develops and implements a business plan annually by following the overall Microscopy Australia project plan.

## **Information for Prospective Staff**

Information about life at UQ including staff benefits, relocation and UQ campuses is [available online](#).

# DUTY STATEMENT

## Primary Purpose of Position

The position will help design and develop analytical instruments that will be used to improve material characterisation techniques used at MA/CMM. This position will work as part of a multi-disciplinary team, designing, building and testing electro-mechanical devices, rack-mount enclosures and state of the art analytical instruments, as well as conduct system-level configuration of mechanical architectures.

In addition this position will debug and troubleshoot existing and new mechanical designs, including hands-on debug activities and functional tests. Where activities are outsourced the position will provide guidance to the involved parties.

Finally it is expected that documentation and user guides will be developed that will assist the use and deployment of the next generation systems to the labs.

## DUTIES

It is expected that the following goals will be achieved:

- The design of mechanical parts and modules in CAD systems ready for arrangement of prototype manufacturing and their performance testing
- The arrangement of prototype manufacturing and their performance testing
- Archiving of technical documentation
- Collection and management of test data (e.g., build and leak test high and ultra-high vacuum systems)
- Establishment of a testing environment and kits for system surveillance
- Performing basic graphing and data analysis procedures in MS-Excel
- Troubleshooting of new prototypes and released systems in order to identify changes in design to avoid failures or improve performance

Other duties include:

- Contributing to the innovation of the relevant technologies for our application fields
- Maintaining and developing good relationships with our strategic suppliers, co-developers and manufacturing partners.
- Engaging with the Microscopy Australia network, including the technology development engineer positions around Australia, along with National Imaging Facility (NIF) and ANSTO
- Developing close relationships with part suppliers to adequately resolve technical conflicts.
- Ensuring that activities are carried out according to the principle of “user focus” and ease of use principles
- Any additional duties as assigned by the Director and in line with the character of the Position Description
- Ensure you are aware of and comply with legislation and University policy relevant to the duties undertaken, including but not exclusive to:
  - the [University's Code of Conduct](#)
  - requirements of the Queensland occupational health and safety (OH&S) legislation and related [OH&S responsibilities and procedures](#) developed by the University or Institute/School
  - the adoption of sustainable practices in all work activities and compliance with associated legislation and related University [sustainability responsibilities and procedures](#)
  - requirements of the Education Services for Overseas Students Act 2000, the National Code 2007 and associated legislation, and related [responsibilities and procedures](#) developed by the University

## Organisational Relationships

The position reports to the Director of the Centre for Microscopy and Microanalysis

## SELECTION CRITERIA

- University degree in a technical discipline, or a combination of relevant education and experience. The position also requires more than 5 years of work experience in a R&D or industrial engineering environment or equivalent experience in CAD design and prototyping.
- Thorough knowledge of test equipment, like multi-meters, oscilloscopes, pressure sensors, and mass flow controllers is required, this includes hands-on experience with trouble-shooting electrical/mechanical equipment
- Demonstrated working knowledge of common analog and digital circuits and schematics; as well as knowledge of vacuum technology and ideally cryo-technology (liquid cryogen usage and cryo-vacuum technologies etc.)
- Ability to create technical documentation and engineering reports using common Microsoft Office and Acrobat applications, including proficiency in in Microsoft Excel as a scientific tool.
- Programming skills in a major programming language or scripting language (C++, Java, Matlab, Labview...); and demonstrated ability to work with and understand mechanical drawings and models
- Ability to plan and resolve issues that involve gaining cooperation of cross-functional, multi-cultural groups and sites without damaging relationships
- Excellent written and verbal communication skills, including to ability to present to wider project proposals, technical reports or other content to wider audiences.

### Desirable

- Expertise in design of electronic circuits or their changes and its integration into systems
- Experience in an analytical laboratory
- knowledge in Microscopy and/or Microanalysis

*The University of Queensland values diversity and inclusion and actively encourages applications from those who bring diversity to the University. Please refer to the [University's Diversity and Inclusion webpage](#) for further information and points of contact if you require additional support.*

*This role is a full-time position; however flexible working arrangements may be negotiated.*

*Accessibility requirements and/or adjustments can be directed to [recruitment@uq.edu.au](mailto:recruitment@uq.edu.au).*