Make it matter.

POSITION DESCRIPTION

# Technical Officer – Micro-CT

| | |
|---|---|
| Faculty/Division | DVC-Research and Enterprise |
| Classification Level | Professional 6 |
| | G - Administrative, Clerical, Computing, Professional & |
| Hours & Span (Category) | Research Staff |
| Position number | ADMIN ONLY |
| Shiftwork status | NOT SHIFTWORKER |
| Allowances | N/A |
| On call arrangements | N/A |
| Original document creation | 6 September 2024 |

## Position Summary

The Micro Computed Tomography (Micro-CT) Laboratory is an X-ray analysis unit located in a state-of-the-art, purpose-built facility at the Kensington Campus of UNSW, part of the Mark Wainwright Analytical Centre (MWAC). The laboratory hosts two HeliScan micro-CT scanners one of which is installed in a dedicated lead-lined room to allow complex experimental set-ups, such as high pressure and high temperature petrophysical/mechanical/fluid/chemical tests. The facility also has a dedicated image analysis laboratory with several local high-performance computers equipped with both free and commercial software (Avizo). The facility has recently invested $1.5 M to upgrade the capability of the facility.

The Technical Officer is part of the scientific team providing support for collaborative and fee-for-service projects for internal and external research groups, and commercial clients. The position will support the research activities of various sample analyses using tomogram X- ray techniques by conducting sample preparation, maintenance, and operation of the micro-CT equipment. The role will also be expected to provide basic user training to use image processing software for data interpretation and manage the health and safety documentation used in the laboratory.

This role reports to the Micro-CT Lab Manager and has no direct reports.

## Accountabilities

Specific accountabilities for this role include:

- Independently assist research staff, students and commercial clients with experiments in the micro-CT laboratory including sample preparation (dry and wet), possibly with various contrast agents, for X-ray acquisition.
- Operate the micro-CT instruments, including performing X-ray acquisitions, checking image quality, output and transferring data to clients.
- Maintain the laboratory instruments, including changing X-ray filaments and performing equipment calibration, troubleshooting and liaising with supplier service engineers.
- Identify any IT maintenance requirements including software upgrades, liaising with UNSW IT and software vendors.
- Coordinate data processing and maintenance including 2D and 3D image visualisation, organising data sets to including other auxiliary data, back-ups to long term storage at the UNSW archive and intermediate storage in the local hard drive.
- Actively contribute to new protocol development including the development of new sample holders, methodologies for sample mounting and development of workflows integrating other instruments across the MWAC such as XRF, XRD, and SEM.
- Manage the general housekeeping in the laboratory including disposal of chemical waste and old samples, access to the facility using the ACLS booking system, updating the laboratory logbook, and purchase of chemicals and consumables.
- Lead laboratory inductions and provide basic user training for research staff and students undertaking image processing analysis in the computer laboratory.
- Liaise with UNSW Safety and the Radiation Safety Committee to ensure X-ray activities comply with UNSW policy and regulatory framework, including performing radiation surveys and managing personal dosimetry measurements, and manage documentation of health and safety in the Laboratory in the UNSW Salus document management system.
- Contribute to the broader activities of the Mark Wright Analytical Centre as required, such as providing input to the local health and safety committee.
- Align with and actively demonstrate the Code of Conduct and Values
- Cooperate with all health and safety policy and procedures of the University and take all reasonable care to ensure your actions or omissions do not impact on the health and safety of yourself and others.

## Skills and Experience

- Relevant tertiary qualification in materials science, civil engineering, minerals engineering, mechanical engineering, fluid flows in porous media or an equivalent combination of education, training and experience.
- Outstanding interpersonal and communication skills (both written and verbal), including demonstrated ability to liaise and develop strong working relationships with internal and external stakeholders of varying backgrounds.

- Experience operating an X-ray Computed Tomography instrument, performing 3D imaging using free or commercial software for analysis and providing training on this software.
- Experience working with high-pressure and mechanical testing cells for in-situ study using a CT scanner.
- Knowledge of implementing X-ray safety under NSW EPA regulations or equivalent. An IA8 EPA licence or equivalent is desirable but not mandatory.
- High level organisation skills with a demonstrated ability to deal with multiple tasks and projects, establish priorities and meet deadlines.
- Demonstrated aptitude to adapt to new and emerging techniques relating to Micro-CT and a desire to learn continually.
- Demonstrated ability to work collaboratively and productively within a team.
- An understanding of and commitment to UNSW's aims, objectives and values in action, together with relevant policies and guidelines.
- Knowledge of health & safety (psychosocial and physical) responsibilities and commitment to attending relevant health and safety training.

About this document

This Position Description outlines the objectives, desired outcomes, key responsibilities, accountabilities, required skills, experience and desired behaviours required to successfully perform the role.

This template is not intended to limit the scope or accountabilities of the position. Characteristics of the position may be altered in accordance with the changing requirements of the role.