Microscopy and Advanced Analytical Facility (MAAF) Access and Cost Recovery Policy for External Users

17 NOVEMBER 2025

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Revision date:

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1. Purpose

This document outlines the policies governing access to, and cost recovery for, the use of equipment and services provided by the Microscopy and Advanced Analytical Facility (MAAF) at Swinburne University of Technology (Hawthorn campus).

The purpose of this policy is to ensure fair, transparent, and sustainable access to the facility's instruments and services for external users while supporting the recovery of operational, maintenance, and service costs required to maintain the facility's high-quality research and analytical capabilities.

2. Scope

This policy applies to external users and organisations accessing the equipment, laboratories, and services of MAAF at Swinburne University of Technology. Eligible user categories include:

- External academics and research collaborators
- Government agencies and non-profit institutions
- Industry and commercial clients
- Consultants and independent researchers

3. MAAF Equipment

MAAF provides access to a suite of advanced materials characterisation instruments that support research, development, and analysis across a wide range of scientific and engineering disciplines. Access to all instruments is subject to prior training, competency approval, and compliance with facility policies.

The following instruments are available under a cost-recovery framework to ensure the sustainable operation of the facility:

3.1. Scanning Electron Microscopes (SEMs)

- **JEOL JSM-IT800** – Imaging and surface characterisation, equipped with an EDS detector (Ultim Max, Oxford Instruments) and an electron backscatter diffraction (EBSD) detector (C-Nano, Oxford Instruments) for crystallographic analysis.
- **Zeiss Supra 40VP** – High-resolution imaging for microstructural analysis, equipped with an energy-dispersive spectroscopy (EDS) detector (INCAx-act, Oxford Instruments) for elemental analysis.
- **Zeiss Supra 55VP** – High-resolution imaging for microstructural analysis.

3.2. X-ray Diffractometers (XRDs)

- **Bruker D2 Phaser** – X-ray diffractometer with a cobalt X-ray source, used for phase identification and crystallographic analysis.

- **Bruker D8 Advance –** XRD system equipped with a copper X-ray tube and variable configurations to support a range of characterisation requirements, including:
  - Autochanger stage for high sample throughput
  - Thermal MTC stage for variable-temperature XRD Studies
  - UMC stage for thin-film analysis
  - Capillary stage for air-sensitive, toxic, or small samples.

3.3. Nanoindenter

- **Hysitron TI Premier Nanoindenter** – A high-precision system designed for evaluating the mechanical properties of materials at the micro-to-nanoscale.

⚠ Instrument access is strictly controlled and will only be granted following the successful completion of all mandatory training requirements, formal acknowledgement of this policy, and a confirmed booking made via the authorised scheduling platform (refer to Sections 4 and 5).

4. Training Requirements

All users are required to complete the full training pathway, including the listed training modules, before they are authorised to operate any MAAF equipment. This pathway ensures users are competent, confident, and operating in accordance with all safety and procedural standards before being granted independent access.

The training process consists of the following stages as depicted in the figure below:

Figure 1 MAAF Training Pathway

4.1. Online Training Modules

4.1.1. *General Lab Induction*

All new users must first complete the online "*General Science Lab Induction*" course. This course is a prerequisite for Laboratory access and outlines policies, laboratory safety guidelines and other useful information.

4.1.2. Online Technical Training

For some instruments, completion of relevant Microscopy Australia online modules is ***recommended***, and may be required prior to in-person training. Modules include, but are not limited to:

- SEM-EDS
- XRD
- Optical Microscope

4.1.3. In-Person Training Session

Following the completion of the online training modules, users must undertake the in-person laboratory safety induction and hands-on instrument training (Training Request Form) as outlined below. Users must first register for an Access Control and Laboratory Scheduling (ACLS) account (Registration Link) before training and bookings can be managed through the platform.

Upon successful completion of all mandatory training modules, users are required to undertake a minimum of two (2) supervised operational hours, scheduled subsequent to the completion of the training program, under the direct supervision of MAAF staff. During this supervised session, users will be formally assessed on their ability to operate the instrument safely and independently. Certification will only be granted upon demonstrating competence and will be duly recorded in the ACLS profile.

Note: EBSD training is available only to users who have successfully completed SEM/EDS training on the JEOL JSM-IT800 and have logged a minimum of 10 operational hours on the SEM.

Note: HT-XRD and thin-film XRD training are available only to users who have completed standard XRD training on the Bruker D8 Advance

⚠ Access to MAAF instruments will not be granted until all training requirements are fully completed and competency is confirmed.

4.2. Training validity and refresher requirements

All instrument training shall remain valid for a period of two (2) years from the date of completion or for six (6) months following the user's last recorded use of the instrument, whichever occurs first. Upon expiry, booking access will be suspended until a refresher training session has been successfully completed. The refresher session will be charged in accordance with the rates specified in the schedule of fees (Section 5.1.). It is the responsibility of the user to ensure that their training remains current prior to making instrument bookings.

5. Cost Components

5.1. Training Cost

The tables below outline the training costs for external users of MAAF facility. Pricing is provided for individual (one-on-one) training, refresher sessions (required when previous training has expired), and group training sessions where available.

- **Individual Training:** One-on-one, hands-on instruction tailored to the user's specific application.
- **Refresher Session:** Required if training has expired (i.e. after two years or following six months of inactivity).
- **Group Training:** Scheduled periodically for standard techniques. Group size is limited to a maximum of four participants to ensure safety and training quality. Session times are set by the MAAF team and communicated to users in advance.

The following table outlines the training fees for external users, including costs for individual, group, and refresher sessions for each instrument.

	Individual Training	Group Training (per person)	Refresher Session
SEM/EDS (3 hrs)	$750	$350	$250
EBSD (2 hrs)	$600	NA	$200
XRD (2 hrs)	$600	$300	$200
HT-XRD (4 hrs)	$600	NA	$100
Thin-Film XRD (4 hrs)	$600	NA	$100
Nano indenter	$750	NA	$500
General Training	$100	NA	NA

6. Instrument Usage Costs

The MAAF facility offers structured and flexible access options for instrument usage, including hourly rates and subscription models. Pricing is determined based on whether the instrument is operated independently by a trained user or under staff assistance. This section defines three official access types based on user training, staff support requirements, and the selected access structure.

- **Trained User Rate:** Applies to users who have successfully completed all required MAAF training and are formally authorised to independently operate the instrument.
- **Staff Support Rate:** Applies to users who require technical staff to operate the instrument on their behalf. This option is not available for SEM or XRD instruments under subscription access.
- **Subscription Access:** Provides flat-rate usage plans for trained users, offering cost-effective access over a specified period. Staff support services are excluded from subscription access.

Note: Subscription hours may be used flexibly across SEM, XRD, and Nanoindenter instruments, provided the user is trained and certified for each. Hour tracking is consolidated, and any usage exceeding the allocated hours will be charged at the applicable trained user hourly rate.

The following access options are available to external users, based on their level of training, service requirements, and specific project needs:

	Trained Users	Staff Support	Subscription		
			Annual Plan	6M Plan	3M Plan
SEM	$75.00/hr	$100.00/hr	$6000 200 hrs/yr	$4000 100 hrs/6 m	$3000 60 hrs/3 m
XRD	$50.00/hr	$75.00/hr			
Nanoidenter	$75.00/hr	$100.00/hr			

Table below outlines the XRD analysis services available**,** with associated costs and deliverables.

Service	Cost (AUD)	Inclusions
XRD – Raw Data Only	$125/Sample	Raw data provided without analysis or report
XRD Phase Identification	$250/Sample	Includes basic report (Phase ID)
XRD Quantitative Analysis	$500/Sample	Includes full report (Rietveld)

7. Booking and Cancellation

7.1. Booking

All instrument bookings must be made in advance through the ACLS platform. Access to ACLS will only be granted once all required training modules for the relevant instrument(s) have been successfully completed.

Users are responsible for checking availability and selecting suitable time slots for their requirements. The minimum booking duration is one (1) hour. Bookings are non-transferable and may only be used by the individual under whose name they are made.

7.2. Cancellation Policy

To ensure equitable and efficient use of MAAF resources, the following instrument booking cancellation policy shall apply:

- Cancellations made at least twenty-four (24) hours before the scheduled session must be submitted through the ACLS platform to avoid cancellation fees.
- If a cancellation is required with less than twenty-four (24) hours' notice, users must immediately contact the MAAF team by email at info.MAAF@swin.edu.au for assistance.

Late cancellations and no-shows may result in partial or full charges, or in deductions from subscription hours, depending on the notice period provided, as specified in the table below.

Notice Given Before Booking	Cancellation Penalty
2 – 24 hrs	50% of the booking fee, or for subscription plans, 50% of the allocated hours (up to 4 hours max)
Less than 2 hrs	100% of the booking fee, or for subscription plans, 100% of the allocated hours (up to 4 hours max)
No notice (No-show)	100% of the booking fee, or for subscription plans, 100% of the allocated hours (up to 4 hours max)

8. Terms and Conditions

The following terms and conditions outline the responsibilities, safety requirements, and operational procedures for all users of the Microscopy & Advanced Analytical Facility (MAAF) within the School of Engineering (SoE) at Swinburne University of Technology. These conditions are intended to ensure the safe, fair, and efficient use of facility resources while preserving the integrity of the research environment.

8.1. General User Responsibilities

All users must read, understand, and accept these terms before access is granted. Non-compliance may result in suspension of access rights and/or financial responsibility for any damages caused.

- All users must familiarise themselves with all MAAF operational policies, including the Risk Assessments (RAs) and Standard Operating Procedures (SOPs), as provided in the School of Engineering (SoE) laboratories.
- All users are required to comply with the University's Occupational Health and Safety (OHS) procedures, as outlined during the induction and on the OHS pages of the University website (Link). For further information, please contact the Health, Safety & Wellbeing team.

8.2. Access Control and Training Requirements

- Each user must be registered in the ACLS system and use their own login credentials for all instrument bookings.
- Training and certification are mandatory for all instruments. Training must be completed with an authorised MAAF trainer, after which competency certification will be recorded on the user's ACLS account.
- Users are strictly prohibited from operating instruments without a valid booking or without appropriate training and certification.
- Unregistered individuals are not permitted in MAAF facilities unless pre-approved by the Laboratory Manager or Facility Director.

8.3. Access Hours

- Standard access hours: 8:30 am – 4:30 pm Monday to Friday (excluding public holidays).
- Staff assistance is available during these hours.

8.4. Booking and Usage Policy

- Sessions must start and end at the allocated booking time, including time for data saving and equipment shutdown.
- Late arrivals or early departures do not qualify for reduced fees.
- In case of instrument downtime, affected bookings will be cancelled and not billed.
- MAAF staff may modify or cancel bookings for maintenance or service requirements. Cancelled sessions will not incur charges.

8.5. Instrument Use and Care

- All usage must be recorded accurately in relevant logbooks.
- Any instrument malfunction or issue must be reported immediately to MAAF staff and documented in the logbook.

- Unauthorised or improper use that results in instrument damage may render the user or their organisation financially liable for repair or replacement costs.
- Users must leave all work areas clean, stable, and ready for the next session.

8.6. Samples and Data Management

- Users are solely responsible for their samples and data.
- MAAF accepts no liability for lost or damaged samples. Unlabelled or abandoned samples (e.g., left in XRD magazines, preparation areas, or desiccators) will be disposed of without notice.
- Users must ensure data is saved, copied, or archived appropriately before leaving the facility. MAAF is not responsible for data loss.
- Personal USB drives are generally not allowed. Users must follow all data transfer instructions provided during lab induction or instrument training to keep lab computers secure.

8.7. Acknowledgement of Facility Use

Any research output, report, or presentation that includes data or analysis obtained using MAAF facilities should acknowledge the facility's contribution. Failure to provide appropriate acknowledgment of MAAF in publications may affect future access to facility resources.

Example acknowledgment:

"SEM-EDS analysis in this study was conducted at the Microscopy & Advanced Analytical Facility (MAAF), Swinburne University of Technology."

"Characterisation work was performed at the Microscopy and Advanced Analytical Facility (MAAF), Swinburne University of Technology, Melbourne, Australia."

9. Contact Information

For any inquiries, you can reach us via the following contact details:

Facility Manager / Director of MAAF	*Associate Professor Andrew Ang* aang@swin.edu.au | 03 9214 4964
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