



## ANFF-NSW ACCESS & PRICING POLICY ANFF-NSW@UNSW HUB

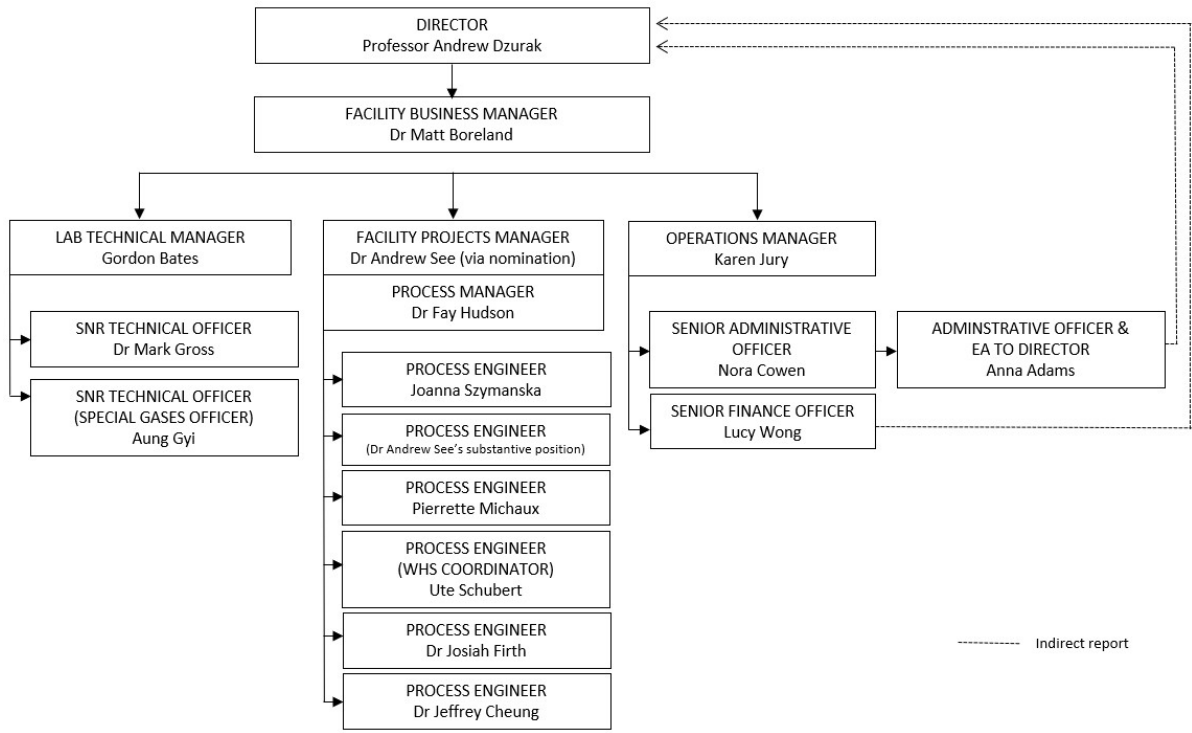
*This Access & Pricing Policy applies to the ANFF-NSW Hub located at UNSW*

### 1. Organizational Matters and Policies

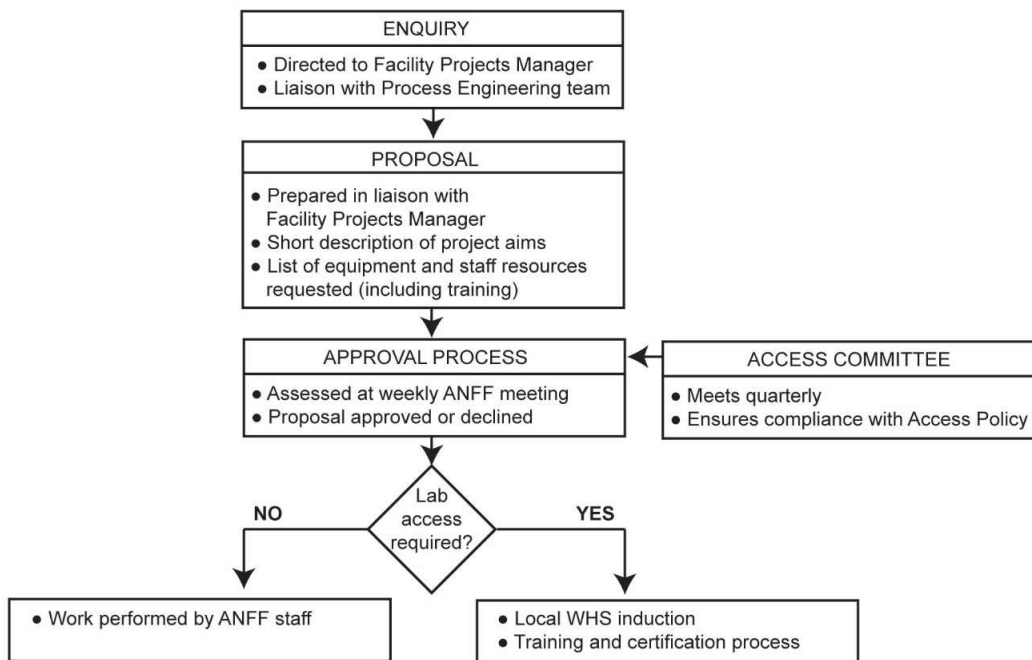
1. Established under the National Collaborative Research Infrastructure Strategy (NCRIS), the Australian National Fabrication Facility (ANFF) is a national network of eight Nodes.
2. ANFF's core aim is to provide micro- and nano-fabrication facilities for Australia's researchers.
3. User access at all ANFF Nodes must be consistent with general NCRIS principles as laid out in the national "ANFF Access and Pricing Policy".
4. The ANFF-NSW Node ANFF NSW is a joint node with facilities at both the UNSW and the University of Sydney
5. ANFF-NSW@UNSW is the ANFF-NSW Hub located at UNSW.
6. In addition to the policies detailed in this document, all ANFF-NSW@UNSW users must adhere to ANFF-NSW@UNSW Health and Safety guidelines as well as to all relevant UNSW policies and procedures.
7. ANFF-NSW funding streams include:
  - ANFF-NSW is funded for 2006-2011 ('NCRIS Project') with the following support: (i) \$3M Federal NCRIS funding (distributed via ANFF Ltd); (ii) \$2M NSW Government funding through the Science Leveraging Fund; (iii) \$1M funding from the University of New South Wales.
  - ANFF-NSW is funded for 2008-2013 ('EIF Project') with the following support: (i) \$4.38M Federal EIF-Super Science funding (distributed via ANFF Ltd); (ii) \$455k NSW Government funding through the Science Leveraging Fund; and (iii) \$1.24M funding from the University of New South Wales.
  - ANFF-NSW is funded for the period 1 July 2013 to 31 December 2014 ('CRIS Project') with the following support: (i) \$1.123M Federal CRIS funding (distributed via ANFF Ltd); (ii) \$289k NSW Government funding through the Research Attraction and Acceleration Program (RAAP); and (iii) \$360k funding from the University of New South Wales.
  - ANFF-NSW is funded for 2013-2017 ('NCRIS2013 Project') with the following support: (i) \$3.328M Federal NCRIS2013 funding (distributed via ANFF Ltd); (ii) \$445k NSW Government funding through the RAAP; and (iii) \$1.08M funding from the University of New South Wales.
  - ANFF-NSW is funded for 2017-2019 ('NCRIS2013 Project') with the following support: (i) \$1.985M Federal NCRIS2013 funding (distributed via ANFF Ltd); (ii) \$273k NSW Government funding through the RAAP; and (iii) \$1.12M funding from the University of New South Wales.
  - ANFF-NSW is funded for 2019-2021 with the following support: (i) \$2.59M Federal NCRIS2013 funding (distributed via ANFF Ltd) ; (ii) \$1.589M of Federal NCRIS 2013 Research Infrastructure Investment Program (RIIP) funding (distributed via ANFF Ltd) (iii) \$942k RIIP co-funding from UNSW, and \$1.470k of co-funding from USYD (iv) \$838k NSW Government funding through the RAAP (inc. \$350k RIIP co-funding); and (v) \$760k institutional funding from the University of New South Wales. and \$116k from The University of Sydney
  - ANFF-NSW funding is used to purchase fabrication equipment and to support

salaries and operational costs as specified in Funding Agreements with the funding bodies.

13. The organization and staffing of the ANFF-NSW@UNSW Hub is summarized in the following Organizational Chart:



## 2. Access Policy and Process for New Users or Job Requests



### 1.1 Proposals

1. ANFF-NSW@UNSW's Projects Manager is the first point of contact for all potential users of ANFF-NSW@UNSW facilities.
2. The Projects Manager will liaise with the potential user and with the ANFF-NSW@UNSW Process Engineering team to assess the scope of the work required and to prepare an ANFF-NSW Proposal describing the proposed work and the equipment and staff resources required.
3. ANFF-NSW@UNSW Proposals are assessed by the Node Director, the Facility Manager, the Projects Manager, the Laboratory Manager and the Process Manager at weekly ANFF-NSW@UNSW meetings. All users are welcome to attend weekly ANFF-NSW@UNSW meetings. Potential users may present their Proposals for assessment in person if they wish, otherwise their Proposals will be presented by the Projects Manager.
4. Where requested equipment or staff resources are oversubscribed (defined as being unavailable within one month of request), or where a Proposal is likely to be declined, the ANFF-NSW Access Committee will be invited to take part in the assessment of the Proposal.

### 1.2 Safety

1. In addition to having an ANFF-NSW@UNSW Proposal formally approved, users requesting direct access to the ANFF-NSW@UNSW laboratories must also complete the local safety induction procedures (as described in the ANFF-NSW@UNSW Health and Safety guidelines).

### 1.3 Payment Advice

1. In addition to other requirements, the ANFF-NSW@UNSW Node User Agreement and ANFF-NSW@UNSW Node Payment Form must be completed and returned to the Projects Manager before user access can be booked or a job can commence.

#### **1.4 Reviews & Renewals**

1. Approvals of ANFF-NSW@UNSW Proposals remain valid for 12 months. For projects which will continue beyond 12 months, a new Proposal must be completed seeking approval for the continuation of the project beyond the initial 12 month period.
2. ANFF-NSW reserves the right to revoke Approvals of ANFF-NSW@UNSW Proposals with seven days' written notice.
3. The ANFF-NSW Access Committee regularly reviews all ANFF Proposals (approved, declined and revoked) to ensure compliance with the ANFF-NSW Access and Pricing Policy.
4. The ANFF-NSW Access Committee comprises the Node Director, the Facility Manager, the Projects Manager, the Laboratory Manager and representatives from the major user groups. The ANFF CEO may also attend Access Committee meetings.

### 3. Pricing Policy

#### 1.5 Rates

1. ANFF FUNDED TOOLS: Use of ANFF-funded tools will be charged at a rate of \$50 per hour for publicly-funded users (students or research staff from UNSW or from external institutions), and \$150 per hour for industry (R&D) or international users.
2. IN-KIND TOOLS: Many pre-existing tools within the ANFF-NSW@UNSW laboratories have been made available as an in-kind contribution from UNSW to ANFF-NSW@UNSW. UNSW users will not be charged for use of these tools, with the exception of the XL30 and Sirion electron beam lithography (EBL) systems which will be charged \$50 per hour.  
External users will be charged at the rate of \$50 per hour for publicly-funded users (students or research staff), and \$150 per hour for industry (R&D) or international users.
3. IN-KIND EBL TOOLS: UNSW users (students or research staff) will be charged \$50 per hour for use of the XL30 and the Sirion electron beam lithography systems.  
External users will be charged at the rate of \$50 per hour for publicly-funded users (students or research staff), and \$150 per hour for industry (R&D) or international users.
4. SUPPORT: User support and training provided by ANFF-NSW@UNSW Staff will be charged at a rate of \$50 per hour for publicly-funded users (students or research staff from UNSW or from external institutions), and \$150 per hour for industry (R&D) or international users.
5. COMMERCIAL RATES: Work completed by, or on behalf of, industry users which cannot be classified as industry R&D will be charged at commercial rates as agreed with the ANFF-NSW Node Director.
1. DECRA SPECIAL RATES: Early Career Researcher discounts of up to 50% off the standard access rates are available upon request. Further details are available from the ANFF-NSW Facility Business Manager.
2. Access fees are reviewed on a periodical basis.

#### 1.6 Billing

1. Access charges are invoiced by calendar month in arrears.
2. Regular users of ANFF-NSW@UNSW facilities may choose to set up a *Subscription* whereby discounted access charges are deducted from a subscription fee paid in advance. Further details are available from the ANFF-NSW Facility Business Manager.

#### 1.7 Pricing & Tool Lists

1. The current pricing structure is summarized in the Table 1 below.
2. The current ANFF-NSW@UNSW Tool List is summarized in Appendix 1. More detailed tool specifications along with details of the extensive wet chemical processing capability offered at ANFF-NSW are available from the ANFF website ([www.anff-nsw.org](http://www.anff-nsw.org)) or by direct enquiry with ANFF-NSW@UNSW's staff.

Table 1 Access Hourly Charges at ANFF-NSW@UNSW\*

|  | Publicly-funded  |                      | Privately-funded |
|--|------------------|----------------------|------------------|
|  | UNSW Students or | Non-UNSW Students or | Industry Users   |
| ANFF-funded Tools (inc. RIIP)                                      | \$50             | \$50                 | \$150            |
| ANFF CMF2018   | \$25             | \$25                 | \$75             |
| MBE Tools  | \$50             | \$50                 | \$150            |
| XL30 and Sirion EBL Tools  | \$50             | \$50                 | \$150            |
| Other In-kind Tools  | NIL              | \$50                 | \$150            |
| ANFF Staff Support<br>(in addition to any applicable tool charges) | \$50             | \$50                 | \$150            |

\* Hourly rates cover all basic costs including clean-room garments, standard chemicals, standard metals and standard resists. Specialty materials (including precious metals) will be charged at cost.

\*\* Work completed by or on behalf of industry users which cannot be classified as industry R&D will be charged at commercial rates as agreed with the ANFF-NSW Node Director.

## 4. Confidentiality and Intellectual Property Policy

1. University of New South Wales staff and student users of the ANFF-NSW@UNSW laboratories have developed and acquired, and use in connection with their operation, valuable, confidential and proprietary technical and economic information related to their processes, technologies, manufacturing lines, equipment, products, operations, customers, suppliers and other aspects of their operation. Such information is referred to below as "ANFF Information".
2. ANFF Users must treat as confidential all *ANFF Information* to which they may be exposed and not disclose any ANFF Information to any third party without prior written permission from the ANFF- NSW Node. This does not restrict an ANFF User's use or disclosure of any information that is now or, through no act of the ANFF User or their employer, later becomes generally available to the public.
3. ANFF Users must not photograph or otherwise make any electronic, optical or magnetic recording of the ANFF-NSW@UNSW laboratories or other Node facilities without prior written permission from the ANFF-NSW Node.
4. Should an ANFF User's Node access be revoked, obligations of non-disclosure of ANFF Information remain in effect.
5. Work undertaken by an ANFF User in the ANFF-NSW@UNSW laboratories or otherwise making use of the facilities of the ANFF-NSW Node is governed by the UNSW Intellectual Property Policy [www.gs.unsw.edu.au/policy/documents/ippolicy.pdf](http://www.gs.unsw.edu.au/policy/documents/ippolicy.pdf) with the following variations under Clause 4, unless otherwise agreed in writing:
  - i) Ownership of any background intellectual property brought to a project by either an ANFF User or a UNSW staff member shall remain with the originator and/or the originator's organization,
  - ii) Intellectual property developed by an ANFF User using the ANFF facilities with no direct contribution from ANFF staff shall be owned by the ANFF User and/or the ANFF User's organization,
  - iii) Intellectual property developed collaboratively by an ANFF User and by UNSW staff shall be shared between the ANFF User and/or the ANFF User's organization and UNSW in proportion to each party's contribution to that intellectual property,
  - iv) Intellectual property developed by UNSW staff completing ANFF commercial jobs shall be owned by UNSW.

## 5. Research Export Controls

1. ANFF Users must comply with Australia's export restrictions on defense and strategic goods and technology including dual-use items in applied research not already in the public domain. More information can be found at [research.unsw.edu.au/research-export-controls](http://research.unsw.edu.au/research-export-controls) .

## 6. Appendix 1: Tool List at ANFF\_NSW@UNSW

For further details and latest updates see also <https://www.anff-nsw.org/>

| Categories                               | Tool   | Funding Source |
|--|--|----------------|
| Lithography                              | Raith 150TWO EBL system                        | ANFF           |
|  | FEI Sirion/XL30 NPGS EBL system                | Combined       |
|  | Karl Suss MA6/BA6 mask aligner                 | ANFF           |
|  | NMP Bath (photomask cleaning)                  | In-kind        |
|  | Karl Suss MJB3 mask aligner                    | ANFF           |
|  | Suite of resist processing tools (spinners and | Combined       |
| Soft Lithography                         | PDMS Station                                   | In-kind        |
| Dry Etching                              | STS ICP-RIE system                             | In-kind        |
|  | Oxford RIE system                              | ANFF           |
|  | Hollow cathode RIE system                      | In-kind        |
|  | O <sub>2</sub> plasma ashers (two available)   | In-kind        |
| Thin Film Deposition                     | Tystar LPCVD (nitride, poly-Si)                | LIEF           |
|  | Lesker PVD75 e-beam evaporator (general        | ANFF           |
|  | Lesker PVD75 e-beam evaporator (MOS)           | ANFF           |
|  | Lesker thermal evaporator                      | In-kind        |
|  | Edwards thermal evaporator (MOS, Al SET)       | In-kind        |
|  | Edwards thermal evaporator (general purpose)   | ANFF           |
|  | HHV sputtering system                          | ANFF           |
|  | Edwards sputtering system                      | In-kind        |
|  | CNT Savannah S200 ALD system                   | ANFF           |
|  | Oxford PECVD tool                              | ANFF           |
|  | Parylene Coater                                | Other          |
| Epitaxial growth                         | Veeco Gen930 III-V MBE                         | LIEF           |
|  | Pascal laser-molecular beam epitaxy systems    | LIEF           |
| Packaging                                | TPT HB10 Thermosonic Au Ball Bonder            | ANFF_CMF2018   |
|  | FS Bondtech 53XX-BDA                           | ANFF_CMF2018   |
|  | K & S Al Wedge Bonder                          | In-kind        |
|  | Karl Suss Manual Wafer Scriber                 | In-kind        |
|  | OEG MR200                                      | ANFF_CMF2018   |
|  | Disco DAD3240 dicing saw                       | ANFF           |
| Thermal Processing & Ion Implantation    | UDOX oxidation furnace (MOS)                   | In-kind        |
|  | GP oxidation furnace (general purpose)         | In-kind        |
|  | Boron diffusion furnace                        | In-kind        |
|  | Phosphorus diffusion furnace                   | In-kind        |
|  | GP anneal furnace                              | In-kind        |
|  | Clean anneal furnace (MOS)                     | In-kind        |
|  | Jipelec rapid thermal annealer (MOS)           | In-kind        |
|  | Clean Si Oxidation Furnace (MOS)               | In-kind        |
|  | Muffle furnace                                 | ANFF           |
| ULVAC MILA-5000 Annealing Furnace (GaAs) | ANFF   |                |



|           |  |             |
|-----------|--|-------------|
|           | ULVAC MILA-5000 Annealing Furnace (general | ANFF        |
|           | IBS Ion Implanter                          | ANFF        |
| Metrology | Dektak XT profilometer                     | ANFF (RIIP) |
|           | Dektak profilers (three available)         | In-kind     |
|           | 4-point Probe                              | In-kind     |
|           | Bruker Edge AFM                            | ANFF (RIIP) |
|           | DI3000 AFM                                 | In-kind     |
|           | JA Woollam spectroscopic ellipsometer      | ANFF        |
|           | Cascade Probe Station                      | ANFF        |
|           | Olympus DSX1000 Digital Microscope         | ANFF (RIIP) |
|           | Suite of optical microscopy tools          | In-kind     |

