

Position description

Research Assistant – Nanostructured biomedical applications

Position number	
Department/Unit	Mechanical and Aerospace Eng.
Faculty/Division	Engineering
Classification (salary rates)	HEW 6 or HEW 7
Employment type	Fixed term
Work location	Clayton Campus
Date document created or updated	01/01/2017

Organisational context

Monash is a university of transformation, progress and optimism. Our people are our most valued asset, with our academics among the best in the world and our professional staff revolutionising the way we operate as an organisation. For more information about our University and our exciting future, please visit www.monash.edu

The Faculty of Engineering is one of the largest in Australia, presently ranked #1 in Australia and renowned worldwide for the quality and calibre of our teaching, research and graduates. We offer a comprehensive range of undergraduate, graduate, postgraduate and higher degree by research programs in a wide range of engineering disciplines. Our research activities provide a platform for establishing a thriving educational enterprise and our staff are committed to creating a dynamic learning environment. The research activities range from fundamental studies to research with a strong applications orientation.

To learn more about the Faculty of Engineering, [please visit our website](#).

The **Melbourne Centre for Nanofabrication** (MCN) is a purpose-built facility, designed to fill the gap in Australia for open access, multi-scale fabrication infrastructure, spanning a range of fabrication environments and materials. It provides the means to produce complex micro and nano-science based demonstration devices using an array of tools. The MCN comprises biological and non-biological fabrication techniques; e.g. electron beam lithography, focussed ion beam lithography, photolithography, embossing, deposition (self-assembly) as well as systems integration capabilities; e.g. bonding, biological spotting, microfluidics.

Position purpose

The successful candidate will work on a Monash funded interdisciplinary research project based at the Faculty of Engineering and MCN. The basis of this project is that nanotechnologies have proven the capacity to enable surface effects that go beyond the standard properties of the bulk materials, ranging from optical effects (i.e plasmonics or photonic colours) and drastic changes in wettability (i.e. super hydrophobic or hydrophilic surfaces) to modulating the response of cells in contact with tailored nanotopographies. These impressive advances are hampered by challenges posed in terms of scalability and the translation to 3D objects with complex shapes. The challenge that this project aims to address is to develop the fundamental fabrication technologies for functional nanosurfaces on real objects with large areas and complex 3D shapes. We will develop technologies based on both top-down and bottom-up approaches, which will benefit wide-ranging applications, and provide specific proof-of-concept in biomedical applications. In addition to the research focus just outlined, the successful candidate will be working in conjunction with MCN staff to help provide infrastructure support for a suite of tools relevant to the project activities via a number of activities including (but not limited to) development and/or refinement of processes and protocols, administration of user training, instrument maintenance and documentation development. The incumbent will take a lead role in working with the local user communities on these tool sets to help identify critical process needs and develop processes and/or solutions to meet those needs.

Reporting Line: The position reports to Head of the Applied Micro and Nanotechnology Lab for the research component of the role and to a Senior Process Engineer at Melbourne Centre for Nanofabrication for the infrastructure support aspects of the role.

Supervisory responsibilities: Co-supervision of Research Associate, PhD, master and Honours students

Financial delegation and/or budget responsibilities: Not applicable.

Key result areas and responsibility

A Level A research-only academic shall work with support, guidance and/or direction from staff classified at Level B and above and with an increasing degree of autonomy as the research academic gains in skill and experience.

Specific duties required of a Level A research-only academic may include:

- the conduct of research under limited supervision either as a member of a team or, where appropriate, independently and the production or contribution to the production of conference and seminar papers and publications from that research;
- supervision of research-support staff involved in the staff member's research;
- guidance in the research effort of junior members of research-only Academic staff in her/his research area;
- contribution to the preparation or, where appropriate, individual preparation of research proposal submissions to external funding bodies;
- involvement in professional activities including, subject to availability of funds, attendance at conferences and seminars in the field of expertise;
- administrative functions primarily connected with her/his area of research;
- occasional contributions to the teaching program within the field of the staff member's research;
- co-supervision or, where appropriate, supervision of major honours or postgraduate research projects within the field of the staff member's area of research;
- attendance at meetings associated with research or the work of the organisational unit to which the research is connected and/or at departmental, school and/or faculty meetings and/or membership of a limited number of committees;
- the provision of research infrastructure support in the form of process development on relevant tool sets, user training, key instrument maintenance, development of supporting documentation such as standard operating procedures and other such activities deemed necessary to support the broader user base;

Key selection criteria

Essential:

1. Master or doctoral qualification in mechanical engineering, materials science and engineering, physics, or chemistry.
2. Demonstrated experience in nanofabrication.
3. Highly competent in lithographic methods, wet and dry etching of metals and other standard cleanroom techniques.
4. Evidence of an emerging track record of publications and presentations;
5. The ability to work under pressure and to prioritise tasks to meet deadlines;
6. High levels of initiative and flexibility;
7. Well-developed interpersonal and written communication skills;
8. Ability to work both independently and collaboratively as a member of a team;
9. Ability to work efficiently, meet project timelines, and excellent organisational skills.

Desirable:

10. Demonstrated knowledge and experience in mammalian cell culture.
11. Experience working with non-standard micro and nanotechnologies
12. Willingness to work on multidisciplinary problems and learn new skills / techniques
13. Demonstrated ability to efficiently supervise or mentor junior lab members
14. Demonstrated skills and/or experience in the practice of professional customer service

Other job related information

- Travel may be required between campuses.
- Travel to CSIRO Manufacturing (Clayton) may be required
- There may be peak periods of work during which the taking of leave may be restricted.

Legal compliance

Ensure you are aware of and adhere to legislation and University policy relevant to the duties undertaken, including: Equal Employment Opportunity, supporting equity and fairness; Occupational Health and Safety, supporting a safe workplace; Conflict of Interest (including Conflict of Interest in Research); Paid Outside Work; Privacy; Research Conduct; and Staff/Student Relationships.