



Senior Research Officer, Nanostructured Biomedical Applications

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| Department/Unit | Mechanical and Aerospace Engineering |
| Faculty/Division | Faculty of Engineering |
| Classification | HEW Level 7 |
| Work location | Clayton campus |
| Date document created or updated | March 2018 |

Organisational context

There's a certain feeling you get from working at Monash University. It's the feeling that you're a part of something special. Something significant. So if you're looking for the next chapter in your career, it's here. You'll be given the opportunity to challenge yourself, build on your skills, and make a significant contribution to a workplace that's filled with energetic and inspiring people. Talent thrives here - and so do truly satisfying careers. Discover more at www.monash.edu

The **Faculty of Engineering** is one of the largest in Australia, 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: www.eng.monash.edu.au/

The **Department of Mechanical and Aerospace Engineering** aims to educate the next generation of leaders in the profession of mechanical engineering, generate new knowledge and insight into the processes that govern our discipline, and provide service to the community, our profession and industry. We are the largest department within the Faculty in terms of student numbers, offering a range of undergraduate and higher degree programs and a strong and ever growing contingent of students working towards a PhD or Masters degree. Research is a vital part of the Department's activities and we are renowned for our expertise and world class facilities. For more information about our Department and the work we do, please visit our website: www.eng.monash.edu.au/mechanical/

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 Senior Research Officer 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 Senior Research Officer 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 Senior Research Officer will take a lead role in working with the local user communities on these tools sets to help identify critical process needs and develop processes and/or solutions to meet those needs.

The Senior Research Officer is a subject matter expert and provides specialist advice to clients, stakeholders and colleagues and delivers of efficient research services in accordance with research protocols and standards.

Reporting line: The position reports to Dr Victor Cadarso Busto under broad direction

Supervisory responsibilities: This position provides co-supervision of a Research Associate, PhD, Master and a number of Honours students

Financial delegation and/or budget responsibilities: Not applicable

Key responsibilities

1. Contribute to planning and operational committees to share knowledge and expertise in the area of research specialisation
2. Oversee and administer the delivery of a high-quality research project or program including applying research methodology, conducting trials and experiments, data analysis, interpretation of results and reporting to meet research objectives, timeframes, protocols and regulatory compliance requirements
3. Provide specialist and technical advice and/or training to clients, staff, students and other stakeholders in the area/s of research specialisation
4. Develop and maintain up-to-date specialist knowledge of new and innovative research methodology, equipment, technology, data management and analysis in the field of research specialisation
5. Provide a high-level research administration program which may include providing advice on, developing and supporting; papers for publication, research or technical procedures, grant applications, reports, literature reviews, data analysis and supporting patenting, copyright or licensing activity
6. Provide support for budget management for the research program or facility, where required, including planning, contributing to funding proposals and developing budget reports
7. Oversee and co-ordinate the day-to-day operations of the research program or project including experiments, testing or data collection activities, overseeing OHS or patient safety measures, maintaining equipment and materials, waste disposal and ordering of supplies
8. Build and sustain partnerships, collaborations and networks with academic and other staff, relevant research bodies, service providers and functional areas

Key selection criteria

Education/Qualifications

1. The appointee will have:
 - A relevant degree in mechanical engineering, materials science and engineering, physics, or chemistry with significant subsequent relevant experience, or
 - extensive experience and management expertise or broad knowledge in technical or administrative fields, or
 - an equivalent combination of relevant experience and/or education/training

Knowledge and Skills

2. Demonstrated experience in overseeing a successful research program, trial or service, with a focus on operational excellence
3. High-level analytical, technical, data analysis and research skills and demonstrated experience in nanofabrication and highly competent in lithographic methods, wet and dry etching of metals and other standard cleanroom techniques
4. Highly-developed planning and organisational skills, with experience establishing priorities, implementing improvements and meeting deadlines
5. Demonstrated project management skills, with a proven record of successfully supporting research projects through to completion
6. Demonstrated ability to work as an effective member of a team as well as the ability to exercise high levels of independence, judgement and initiative
7. Demonstrated analytical, research and problem solving skills and the ability to identify and recommend solutions to challenging issues
8. Highly-developed interpersonal and communication skills with the ability to prepare professional documentation for various audiences and provide expert advice in areas of specialist or research knowledge
9. Demonstrated relationship management and consulting skills, including the ability to interact with, negotiate with and gain cooperation from internal and external stakeholders
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 and techniques

Other job-related information

- Travel to other campuses of the University may be required
- There may be a requirement to work additional hours from time to time
- There may be peak periods of work during which 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.