*Faculty / Division: Faculty of Engineering*

*School / Unit: Mechanical Engineering*

*Position Level: A*

*Position Number: 00082191*

*Position Title: Postdoctoral Fellow*

*Date Written: February 2019*

## ORGANISATIONAL ENVIRONMENT

UNSW is currently implementing a ten-year strategy to 2025 and our ambition for the next decade is nothing less than to establish UNSW as Australia’s global university. We aspire to this in the belief that a great university, which is a global leader in discovery, innovation, impact, education and thought leadership, can make an enormous difference to the lives of people in Australia and around the world.

Following extensive consultation in 2015, we identified three strategic priority areas. Firstly, a drive for academic excellence in research and education. Universities are often classified as ‘research intensive’ or ‘teaching intensive’. UNSW is proud to be an exemplar of both. We are amongst a limited group of universities worldwide capable of delivering research excellence alongside the highest quality education on a large scale. Secondly, a passion for social engagement, which improves lives through advancing equality, diversity, open debate and economic progress. Thirdly, a commitment to achieving global impact through sharing our capability in research and education in the highest quality partnerships with institutions in both developed and emerging societies. We regard the interplay of academic excellence, social engagement and global impact as the hallmarks of a great forward-looking 21st century university.

To achieve this ambition we are attracting the very best academic and professional staff to play leadership roles in our organisation.

## Values in Action: Our UNSW Behaviours

UNSW recognises the role of employees in driving a high performance culture. The behavioural expectations for UNSW are below.

Please refer to the UNSW Behavioural Indicators for the expectations of your career level A.


## OVERVIEW OF RELEVANT AREA AND POSITION SUMMARY

The School of Mechanical and Manufacturing Engineering is one of the largest and most prestigious in Australia, with 2500 student enrolments, 80 academic staff, 25 professional staff, and total annual budget of over $22 million including external research grants. Our mission is to prepare students for careers of leadership and innovation, create new scientific advances, and translate research outcomes to positively impact national and global industry and society. We are seeking to attract high-calibre researchers and educators to expand our thriving research programs and contribute to our education excellence in Aerospace, Mechanical Engineering, Advanced Manufacturing Engineering, Robotics and Mechatronics. For further information about the School, please visit <http://www.engineering.unsw.edu.au/mechanical-engineering/>.

The Postdoctoral Fellow will perform a variety of high quality research on novel bio-inspired fire retardants for the Australian Research Council (ARC) funded Training Centre for Fire Retardant Materials and Safety Technologies. The Postdoctoral Fellow works closely with other Centre members to develop original fire retardants using new formulations and advanced manufacturing techniques.

The Postdoctoral Fellow reports to the Director (Professor Guan Heng Yeoh) and has a dotted reporting line to the Head of School of Mechanical and Manufacturing Engineering (Professor Chun Wang) and Dr Raymond Neff, and no direct reports.

## RESPONSIBILITIES

Specific responsibilities for this role include:

* Conduct research of high quality and high international impact in the areas of fire proofing lightweight materials and formulations of flame retardants independently and as part of a team. This includes but is not limited to:
	+ Manufacture and characterise fire proofing lightweight materials and flame retardants;
	+ Contribute to the development of new intellectual property in relation to the project;
	+ Work within a diverse team of academic and industry participants including Fire and Rescue New South Wales and other universities;
	+ Identify and understand Australian Standards (and other mandatory industry, state or federal requirements) for each project or product developed and ensure that the project/product developed meets or exceeds these minimum requirements.;
	+ Participate in fire tests, research, industry technical discussions, demonstrations and collaborations which may be off-campus.
* Contribute to the preparation of follow-up grant proposals and research proposal submissions to funding bodies and actively seek collaboration with industry partners as appropriate.
* Participate in and/or present at conferences and/or workshops relevant to the project as required.
* Maintain strict confidentiality regarding the work done on the industry partner Flame Security International’s (FSI) products and projects.
* Proactively collaborate and assist other team members working on the FSI projects.
* Participate in, and contribute to, weekly progress meetings and write progress reports on project milestones and deliverables.
* Assist with the supervision of research students in the research area where required.
* Cooperate with all health and safety policies and procedures of the university and take all reasonable care to ensure that your actions or omissions do not impact on the health and safety of yourself or others.

## SELECTION CRITERIA

* PhD (or soon to be conferred) or equivalent in Mechanical Engineering or related discipline.
* Previous experience and knowledge in industry is highly desirable.
* Experience in fire retardant formulations in polymer materials or testings of fire-retardant materials.
* Proven knowledge and experience in polymer materials engineering, thin films/surface coating fabrication, and material characterization techniques using microscopy and related methods.
* Demonstrated ability to conduct independent research with limited supervision.
* Demonstrated track record of publications in high quality journals and conference presentations relative to opportunity.
* Strong interpersonal skills with demonstrated ability to communicate and interact with a diverse range of stakeholders and students.
* Demonstrated ability to work in a team, collaborate across disciplines and build effective relationships.
* Demonstrated ability and flexibility to adapt to changing project priorities and maintain an effective contribution to the delivery of project milestones within limited budgets.
* Knowledge of health and safety responsibilities and commitment to attending relevant health and safety training.

*It is not the intention of the position description to limit the scope or accountabilities of the position but to highlight the most important aspects of the position. The aspects mentioned above may be altered in accordance with the changing requirements of the role.*