Position Description

Postdoctoral Fellow

Position Number: 59456 *Position Title: Postdoctoral Fellow* *Date Written: January 2019*	*Faculty / Division: Faculty of Engineering* *School / Unit: Mechanical and Manufacturing Engineering* *Position Level: Level A*

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.

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 (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, operating budget of over $15 million and annual external research funding of more than $6 million. 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. Our School seeks to attract high quality researchers and educators to expand thriving research programs and contribute to our education and research excellence in Aerospace, Mechanical Engineering, Robotics and Mechatronics, and Advanced Manufacturing https://www.engineering.unsw.edu.au/mechanical-engineering/.

The ARC Training Centre for Automated Manufacture of Advanced Composites (AMAC) http://advanced-composites.unsw.edu.au was established in 2017 under the Industrial Transformation Research Program (ITRP). With UNSW as the administrating node, AMAC is a collaboration between UNSW, ANU, Technical University of Munich (TUM) and nine industry partners. It combines world-class composites manufacturing capabilities with a high-value, industry focused research training experience to nurture and develop future innovators. Composites research in Australia has been identified as an area of national research strength and a key component of Federal Government's Advanced Manufacturing innovation agenda. The research organisations (UNSW Sydney, ANU & TU Munich) provide the knowledge and cutting edge capability that, through the Centre programs, will transform advanced composites manufacturing for Australian Industries.

The Postdoctoral Fellow will provide technical and intellectual input towards the main aims of the ARC Training Centre and will be a key liaison with the Training Centre Industry Partner Organisations. The Postdoctoral Fellow will be responsible for joint supervision of PhD projects and will be required to meet key research deliverable milestones during the project. As a member of AMAC, the Postdoctoral Fellow will work closely with the Centre Director, Centre Manager and other Postdoctoral Fellows based at UNSW and ANU.

The role of Postdoctoral Fellow reports to Centre Director and has no direct reports.

RESPONSIBILITIES

Specific responsibilities for this role include

- Conduct research in the area of multi-scale simulation and performance prediction of composite materials independently and as part of a team;
- Contribute to the writing of scientific papers and reports for international journals and progress reporting to other researchers and industry partners;
- Manage a research program on Simulation and Performance Prediction, manage and maintain the collaborative research relationships with ARC Training Centre industry partners, and assist in meeting program requirements, deliverables and milestones;
- Engage with industry and build new and existing relationships, acting as the primary liaison with industry partners for ARC Training Centre research projects and developing new funding opportunities;
- Assist with the coordination of research activities and actively contribute to research outputs to meet project milestones;
- Contribute to the preparation of 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;
- Assist with the supervision of research students in the research area where required;

- Contribute to all aspects of the operation of the School of Mechanical and Manufacturing Engineering and assist in outreach activities including to prospective students, research institutes, industry, government, the media and the general public;
- Manage research data in accordance with the requirements established by the ARC and the grant management committee;
- 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 in Materials, Mechanical, Civil, Aerospace or Manufacturing Engineering, or a related discipline;
- Solid understanding of mechanical engineering fundamentals: properties of materials and solid mechanics are essential. Demonstrated research experience and output in the following research areas:
    - Multi-scale modelling and finite element simulation of composite structures
    - Performance prediction and damage modelling of laminated composite structures
- Experience of prosecuting industry-based, interdisciplinary research projects applying knowledge and skillsets in the field of composite structural analysis and modelling, with evidence of research impact;
- Expertise in composites manufacturing (particularly automated manufacturing).
- Demonstrated ability to conduct independent research with limited supervision;
- Demonstrated track record of publications and conference presentations relative to opportunity;
- Demonstrated ability to work in a team, collaborate across disciplines and build effective relationships;
- Strong interpersonal skills with demonstrated ability to communicate and interact with a diverse range of stakeholders and students;
- Highly developed organisational skills including the ability to work independently to set priorities, monitor work flow and meet competing deadlines whilst maintaining accuracy;
- An ability and commitment to win bids for competitive external funding to support collaborative research activities;
- 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.