Position Description

Lecturer to Associate Professor in Experimental Turbulent Fluid Dynamics

Position Number: 00060897
Position Title: Lecturer to Associate Professor in Experimental Turbulent Fluid Dynamics
Date Written: 14 May, 2018

Faculty / Division: Engineering
School / Unit: School of Mechanical and Manufacturing Engineering
Position Level: Level B/C/D

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 B/C/D).

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<th>Demonstrates Excellence</th>
<th>Drives Innovation</th>
<th>Builds Collaboration</th>
<th>Embraces Diversity</th>
<th>Displays Respect</th>
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<td>Delivers high performance and demonstrates service excellence</td>
<td>Thinks creatively and develops new ways of working. Initiates and embraces change</td>
<td>Works effectively within and across teams. Builds relationships with internal/external stakeholders to deliver outcomes</td>
<td>Values individual differences and contributions of all people and promotes inclusion</td>
<td>Treats others with dignity and empathy. Communicates with integrity and openness</td>
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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 purpose of this role is to deliver outstanding research and teaching in the area of turbulent flow, such as wall-bounded turbulent flow in arteries. In the Faculty priority area of Biomedical & Health, our School has a strong group with very active industry and clinical collaboration. An understanding of turbulent flows, and in particular wall-bounded turbulent flows, is critical to further advance many fields of mechanical engineering, including the strength area of arterial flows and medical devices, aero-acoustics and engine combustion. A leading researcher in turbulent flows would be able to make significant contributions on projects characterising the nature of turbulence within arterial flows, using the state-of-art fluid dynamics laboratory.

A Level B academic is expected to carry out activities to develop their scholarly research and professional activities both nationally and internationally and to contribute significantly to achieving the teaching and service missions of the School and Faculty.

A Level C academic is expected to develop an internationally recognised research program in the field and to contribute significantly to achieving the teaching and service missions of the School and Faculty.

An academic at Level D plays a key role in leading and advancing outstanding research at national and international level. The Associate Professor is expected to play a significant leadership role in supporting the teaching and service missions of the School and Faculty.

This position reports to the Head of School and has nil direct report.

RESPONSIBILITIES

It is expected that the appointee at level B or C will progress on a continual satisfactory and upward trajectory in their performance and specific performance expectations will be set individually with the Head of School/Supervisor.

Specific responsibilities for the role of Lecturer (Level B) include (but are not limited to):

- Develop and contribute to research projects in medical robotics and bionics.
- Deliver high quality teaching of computational modeling of surgical robotics, tactile sensing and control, autonomous systems, robotic assistance and assistive technologies, neurorobotics, bionics, including medical device micromanufacturing and microfabrication, computing for robotics and other advanced topics such as optimization, computer vision, data fusion and nonlinear control systems.
- Provide high quality supervision of major honours and postgraduate student research projects
- Contribute to academic excellence through world-leading research activity.
- Actively engage with Governments, industry and the community to develop significant collaborative partnerships, attract external funding and participate in professional activities.
- Work collaboratively with peers across the Faculty and UNSW in all aspects of academic endeavour and contribute to mentoring of other staff.
• Contribute to broad administrative functions of the School and/or University, coordinate subjects, attend departmental and/or faculty meetings, participate in Open days and recruitment activities and play a major role in planning and/or committee work or other responsibilities, as directed by Head of School.

• Ensure hazards and risks are identified and controlled for tasks, projects and activities that pose a health and safety risk within your area of responsibility.

The specific duties of the **Senior Lecturer** (Level C) include (but are not limited to):

• Initiate and lead research projects that bring rapidly evolving robotics research closer to industrial reality.

• Deliver high quality teaching of robotics and autonomous systems, including computational modeling of surgical robotics, tactile sensing and control, autonomous systems, robotic assistance and assistive technologies, neurorobotics, bionics, including medical device micromanufacturing and microfabrication and computing for robotics with sound pedagogical methodologies and innovative technologies.

• Provide high quality supervision of major honours and postgraduate student research projects.

• Contribute to academic excellence through world-leading research activity.

• Actively engage with Governments, industry and the community to develop significant collaborative partnerships, attract external funding and participate in professional activities.

• Work collaboratively with peers across the Faculty and UNSW in all aspects of academic endeavour and contribute to mentoring of other staff.

• Contribute to broad administrative functions of the School and/or University, coordinate subjects, attend departmental and/or faculty meetings, participate in Open days and recruitment activities and play a major role in planning and/or committee work or other responsibilities, as directed by Head of School.

• Ensure hazards and risks are identified and controlled for tasks, projects and activities that pose a health and safety risk within your area of responsibility.

It is expected that the appointee at level D will continue to provide a significant contribution to their discipline and deliver satisfactory performance and leadership. Specific performance expectations will be set individually with the Head of School/Supervisor.

The specific duties of the **Associate Professor** (Level D) include (but not limited to):

• Conduct research of high quality and high international impact including attainment of competitive government and industry research funding and publication of outcomes in high quality research outlets.

• Play a significant role in the leadership of research projects including, where appropriate, leadership of a research team.

• Deliver high quality teaching and student experience utilising sound pedagogical methodologies and innovative technologies and from time to time, deliver teaching across a broad engineering discipline.

• High quality supervision of honours and postgraduate research projects.

• Provide leadership in developing significant productive relationships and engagement with industry and the community, attract significant industry funding and participate in professional activities.

• Work collaboratively with peers across the Faculty and UNSW in all aspects of academic endeavour and contribute to mentoring of other staff.

• High level contribution to broad administrative functions in the School and/or University, course coordination, attending departmental and/or faculty meetings, involvement in Open days and
recruitment activities and play a major role in planning and/or committee work or other duties as requested by the Head of School.

- Provides a significant contribution to the profession and discipline.
- Ensure hazards and risks are identified and controlled for tasks, projects and activities that pose a health and safety risk within your area of responsibility.

**SELECTION CRITERIA**

Applicants from industry and professional backgrounds should demonstrate their equivalent level of standing as demonstrated by professional experience.

**Lecturer**

- PhD in mechanical engineering or related area.
- Demonstrated track record in research with outcomes of high quality and high impact with clear evidence of the desire and ability to continually achieve research excellence as well as the capacity for research leadership.
- Demonstrated ability and willingness to deliver high quality and innovative teaching and student experience to both undergraduate and postgraduate students.
- A track record of significant involvement with the profession and/or industry.
- High level communication skills and ability to network effectively and interact with a diverse range of students and staff.
- Demonstrated ability to work in a team, collaborate across disciplines and build effective relationships.
- Willingness to undertake any compliance and supervisor training as required.
- Ability and capacity to implement required UNSW health and safety policies and procedures.

**Senior Lecturer**

- PhD in mechanical engineering or related area.
- Demonstrated track record in research with outcomes of high quality and high international impact with clear evidence of the desire and ability to continually achieve research excellence as well as the capacity for research leadership.
- Demonstrated ability and willingness to deliver high quality and innovative teaching and student experience to both undergraduate and postgraduate students.
- Experience in successfully recruiting and supervising high calibre students.
- Demonstrated ability to interact with the profession and industry.
- High level communication skills and ability to network effectively and interact with a diverse range of students and staff.
- Demonstrated ability to work in a team, collaborate across disciplines and build effective relationships.
- Willingness to undertake any compliance and supervisor training as required.
- Ability and capacity to implement required UNSW health and safety policies and procedures.
Associate Professor

- PhD in mechanical engineering or related area.
- Significant track record in research leadership with outcomes of high quality and high international impact with clear evidence of the desire and ability to continually achieve research excellence and deliver research leadership.
- Record of outstanding delivery of high quality of teaching and student experience at both undergraduate and postgraduate levels and ability to develop innovative teaching methods.
- Excellent record of recruiting and supervising high calibre students.
- Demonstrated leadership in building engagement and partnerships with the profession and industry.
- High level communication skills and ability to network effectively and interact with a diverse range of students and staff.
- Demonstrated ability to work in a team, mentor other staff, collaborate across disciplines and build effective relationships.
- Willingness to undertake any compliance and supervisor training as required.
- Ability and capacity to implement required UNSW health and safety policies and procedures.

PRE EMPLOYMENT CHECKS REQUIRED FOR THIS POSITION

Verification of qualifications

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.