



Flinders
University

Defence RESEARCH

Today's research defending tomorrow. From autonomous marine vehicles to advanced additive manufacturing, the technologies of tomorrow are emerging from the world-class research we do today.



Introduction

One of Australia's most progressive and innovative institutions, Flinders University has earned an international reputation for research that tackles real-world challenges and explores some of the truly fundamental questions of our time.

As host to a suite of flagship national research centres, Flinders is engaged with universities and research institutes in Australia and around the world, bringing together fearless minds to develop new technologies and practical solutions.

This is particularly evident in our impressive expertise in defence research and innovation. Our location in Adelaide, South Australia, places us at the heart of Australia's defence industry.

Working alongside some of the world's foremost defence and technology companies ensures that our research is real-world tested, ready for commercial application and able to make a difference.

Enterprising collaborations with government and industry partners mean Flinders graduates are work-ready and able to make an immediate impact in the sector.

Flinders University defence research – forging powerful partnerships, growing defence knowledge.



Professor Robert Saint AM
Deputy Vice-Chancellor (Research)



Flinders University: a global focus on real-world solutions

Flinders University is a globally focused, locally connected institution that exemplifies teaching, learning and research excellence. Ranked in the top two per cent of universities in the world*, Flinders offers a world-class education and has a proud reputation for high quality research.

Flinders has a strong and growing research profile, with 90 per cent of our research ranked at or above world standard by Excellence in Research for Australia** and research funding exceeding A\$94m in 2020.

Flinders University's maritime and defence research centres are based at the Bedford Park and Tonsley campuses, in the heart of South Australia's technology and manufacturing industries.

Tonsley is home to BAE Systems Australia and Flinders University's Line Zero – Factory of the Future, a defence and advanced manufacturing accelerator set to unlock 4000 jobs over five years. The bold vision will secure our economic prosperity for generations to come and place Australia as a top 10 global defence exporter.

Our researchers partner with government, law enforcement, industry and NGOs to work together and ensure that defence and security policymakers, support services and systems, have the most up-to-date, evidence-based research they need, to face challenges old and new.

South Australia: The Defence State

South Australia is home to seven of the world's top 10 defence companies and for more than two decades South Australian companies have played crucial parts in delivering our nation's most complex and dynamic defence projects.

Also home to a critical mass of world-class industry, South Australia's defence sector continues to provide unprecedented opportunity for growth across maritime, aerospace, land, systems and cyber domains. Many major defence companies are headquartered or have significant operations in South Australia.

The defence industry is also serviced by a strong core of defence-related small-to-medium enterprises (SMEs), who deliver into the supply chains of prime contractors worldwide.

Defence SA

Partnering with defence, industry and academia to advance South Australia as the centre of expertise in defence science and research is a key priority for the South Australian Government.

To find out more about the South Australian Government's activities in defence, visit: defencesa.com

Research strengths

Centre for Defence Engineering, Research and Training

The Centre for Defence Engineering Research and Training (CDERT) is bringing its research strengths to bear, to develop world-leading academic knowledge and capability in key disciplines that make up defence engineering and technology. Working together with partners in the defence industry, both in Australia and in allied nations, CDERT is focused on the provision of research, training and consultancy excellence.

CDERT is involved in a range of research areas including the development of autonomous surface and underwater vehicles, mine counter-measures and launch and recovery of autonomous marine vehicles. The Centre is home to a \$5 million National collaboration between the Department of Defence and Flinders University on EW research and training. Additional research strengths within the Centre include bioinspired imaging, AI/ML, human machine teaming, human factors and digital technologies.

Our strong collaboration with the defence industry, coupled with our research strengths in key disciplines and our unique research facilities, support our capability in conducting world-class research and in achieving impact.

Factory of the Future

Factory of the Future, led by Flinders University, in partnership with BAE Systems Australia, is Australia's first industrial-scale high value manufacturing research and accelerator facility. Thousands of jobs will be created at a time when employment is critical and about 250 companies will be involved in the facility, benefiting from collaborations with research expertise and integration into domestic and international value chains.

The Factory of the Future will bring together education, industry and government to facilitate the implementation of Industry 4.0, bridging the valley between research, development and innovation to boost the national economy. The foundations for success are already in place at Tonsley Innovation District.

Australian Industrial Transformation Institute

The Australian Industrial Transformation Institute (AITI) brings social scientists and engineers together to work on the opportunities and challenges of digital transformation and advanced technologies.

Working closely with Defence Primes and SMEs, AITI is investigating industrial development opportunities for Australian companies arising from maritime defence projects based in South Australia, such as BAE Systems Maritime Australia's Hunter Class Frigate program. AITI leads the Factory of the Future for Flinders University.

Nanoscale Science and Technology

Working in collaboration with forensic and analytical sciences, the Flinders Institute for Nanoscale Science and Technology is investigating ways in which nanotechnology can be applied to create revolutionary solutions to real-world problems. These include:

- highly sensitive chemical sensors and bio-sensors
- energy generation and storage
- corrosion protection and enhanced functionality of surfaces through ultrathin and high-density, oriented polymer coatings
- antifouling coatings
- water treatments for reusable potable water
- marine composites and structures
- additive manufacturing

The Jeff Bleich Centre (JBC) for the US Alliance in Digital Technology, Security, and Governance

Named in honour of Jeff Bleich, appointed by President Obama as US Ambassador to Australia, (2009 – 2013), the Jeff Bleich Centre was established to support the capacity of government, business and the community to combat threats arising in high tech domains, such as cyber and space, and to strengthen the US-Australia Alliance across these areas. JBC academics have worked with defence on projects addressing AI, Information Warfare, disinformation, autonomous vehicles and regulation of outer space.

Flinders provides world-class research and a range of defence-orientated degrees across diverse fields such as business, science, engineering and information technology. Work-ready graduates and innovative research and developments have kept the University on the front line of the defence and national security industries.

Find out more: flinders.edu.au/defence



*THE World University Rankings 2022 as a percentage of the total number of universities in the world according to the International Association of Universities.

**Flinders rating 89.7%, rounded up to 90% (Excellence in Research in Australia, 2018)

Collaborate with us

Contact Flinders University today to see how we can build a powerful research partnership with your organisation.

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Photo: BAE Systems Australia.

Flinders partnerships



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