University of South Australia | Enterprise Hub

Australia's University of Enterprise for Defence

Transforming knowledge into world-class innovation.

Innovation and outcomes that support defence capability

Defence research at UniSA is underpinned by innovation and excellence. Our researchers are passionate, and dedicated to bridging the gap between knowledge and real-world solutions. We are committed to successful engagement with government, industry, the professions and other groups to build and support the defence capability of Australia. This is demonstrated by our numerous partnerships with government and industry, including the Defence Science and Technology Group, Lockheed Martin, BAE Systems, Saab, ASC, Raytheon, Boeing, Babcock Australasia, Airbus, Nova Systems, Accenture, and many Australian defence industry SMEs.

UniSA supports the Department of Defence and the wider defence industry through a broad range of undergraduate and postgraduate study options, preparing graduates to meet the demands of industry.

Why partner with UniSA?

UniSA is a globally connected university that partners with more than 2,500 companies and industries worldwide. We are also South Australia's largest university with more than 37,000 students located across six campuses and online.

Our teaching is industry-informed, our research is inventive and adventurous. We create knowledge that is central to global economic and social prosperity.

100% of our Assessed Research Rated at or Above World-class
2018 Excellence in Research for Australia (ERA), 4-digit Fields of Research.

No.1 in Australia for research impact and engagement
2018 ARC Engagement and Impact Assessment (EI), Combined Impact – Approach to Impact and Engagement on Assessed Fields.

Foundation Member of the Defence Innovation Partnership
Industry-wide collaboration for defence-relevant research and development in South Australia.

#1 Young University in Australia for Industry Collaborations
2022 The Young University Rankings – Industry Income Indicator.

Above World-class Research in Artificial Intelligence and Software Engineering
Results in Artificial Intelligence and Image Processing – 2018 Excellence in Research for Australia (ERA).

#1 Young University in Australia for Industry Research Income
2022 The World University Rankings.

Industry engaged research

UniSA's research strengths and partnerships in defence are largely focused in the following groups:

- The Future Industries Institute (FII)
- Industrial AI Research Centre
- Australian Research Centre for Interactive and Virtual Environments (IVE)
- Behaviour-Brain-Body Research Centre
- Laser Physics and Photonics Devices Laboratories
- Industry 4.0 Testlab.

We are a foundation member of the Defence Innovation Partnership designed to generate defence-related research and development activity for South Australia. We have one of the longest running university partnerships with the Australian Defence Science and Technology Group of any Australian university.

The future of advanced manufacturing in defence

UniSA researchers are collaborating with BAE Systems to deliver manufacturing data intelligence to the $35 billion Hunter Class Frigate program. Our narrative and data visualisation expertise has enabled BAE Systems to visualise the current and future state of the shipbuild, shipyard and the supply chain. This has revealed hidden factors that help to assist in maintenance and support. The second phase of the project uses Augmented and Virtual Reality (AR/VR) to overlay the data from each zone of construction to produce a 3D tabletop version of the build.

This research will refine the highly complex manufacturing environment while at the same time improving shipyard planning, the construction process and problem-solving capacity. As a result, the development of the Australian Hunter Class Frigate Program has a more agile approach to manufacturing and can respond to technological advancements as they happen, saving significant time and money. It will ensure Australia has the most advanced, up-to-date and efficient frigates in the world.

Our defence research capabilities

Artificial Intelligence & Complex Systems
Knowledge-based systems, system integration and interoperability

Autonomous systems
Robotics, mechatronics and advanced controls

Data Analytics and Machine Learning
Data visualisation, data fusion and network modelling

Augmented and virtual reality
Display technologies, narrative visualisation and remote collaboration

Wearable and empathetic computing
Human-machine interface and teaming

Material and surface engineering
Thin film coating and microfabrication

Advanced manufacturing
Industry 4.0, 3D printing, digital twinning and interoperability

Sensors and laser engineering
Higher energy laser and materials, spatial and spectral sensing

Telecommunications and signal processing
Wireless communications and signal processing and analysis

Space science
Satellite Communications, Planetary science and Earth observation

Cyber defence
Cyber security and space cyber

Industrial design
Ergonomics and human-technology interaction

Human-centred design
Human performance, habitability and fatigue management

Human sciences
Exercise physiology, nutrition and biomechanics

Organisational psychology
Organisational learning, culture, creativity and climate

Systems engineering
Model-based systems engineering, verification and validation, test and evaluation and modelling

Defence executive education
Project management, quality assurance and Six Sigma, and executive development

UniSA is a member of the Defence Industry Security Program (DISP) allowing us to undertake sensitive research with Defence and Defence industry.

Learn at UniSA

UniSA offers a range of defence-related degrees at undergraduate and postgraduate level. Our programs have been designed with input from industry to ensure students graduate with in-demand knowledge and skills, prepared to transform our nation's future defence workforce.

Job opportunities in defence are broad. From cybersecurity to aviation, systems engineering or industrial design, students can follow their passion to pursue a dynamic and rewarding career in defence.

Partner with us

To discuss opportunities to collaborate on student placements, grants, workshops, infrastructure and testing, research, joint R&D, sponsorships, scholarships, adjuncts, staff exchange, internships, co-chairs and PHDs.

Master of Systems Engineering

Designed to meet the needs of engineers and defence industry professionals, the Master of Systems Engineering develops high level engineering skills relevant to Australia's national defence interest. Teaching draws extensively on visiting lecturers — experts in their field — to reinforce real-world defence sector practices. Students develop an advanced understanding of systems engineering in the development of complex systems through a combination of case studies and in-class learning based on application to industry. Graduates of this program will be able to further their careers within government departments and the defence industry.

Other programs you may wish to consider for a career in defence

Postgraduate

International Master of Business Administration
specialising in Business Analytics, Finance or Human Resource Management

Master of Business Administration

Master of Cybersecurity

Master of Data Science

Master of Design
specialising in Industrial Design or Design and Construct

Master of Engineering
specialising in Civil and Infrastructure, Cyber Engineering and Telecommunications, Electrical Power or Engineering Management

Master of Management
specialising in Business Analytics, or Human Resource Management

Master of Project and Program Management

Undergraduate

Bachelor of Aviation (Pilot)

Bachelor of Business (Logistics and Supply Chain Management)

Bachelor of Data Analytics

Bachelor of Design (Product Design)

Bachelor of Engineering (Honours)
Specialising in Civil, Civil & Structural, Electrical and Electronic, Electronic and Mechatronics, Mechanical, Mechanical and Advanced Manufacturing, or Mechanical and Mechatronic

Bachelor of Information Technology
Specialising in Networking and Cybersecurity or Software Development

Bachelor of Mathematics (Data Science)

Bachelor of Software Engineering (Honours)

Bachelor of Science

Veterans' Engagement and Education Program

UniSA believes that Australian Defence Force (ADF) personnel and our nation's first responders deserve every chance to forge successful civilian lives when they leave service. Through the UniSA Veterans' Engagement & Education Program (VEEP), we are working to improve access to higher education for current and ex-service personnel and create a welcoming and inclusive university environment. In partnership with industry, VEEP is providing a range of support to aid our veterans as they transition into a new career.

Matt Opie
Director, Defence & Space
matt.opie@unisa.edu.au
+61 (O) 8 83O2 9127
+61 (O) 411 455 811

unisa.edu.au/defence