Flinders University

Australian Government

ANSTO

Give your career
A Nuclear edge

Study nuclear engineering and prepare yourself for a global career

Nuclear Postgraduate Courses

Nuclear technology is critical for future industries

To help you to supercharge your career with an nuclear edge, Flinders' world leading nuclear education options enable you to stand out to employers with unique skills, and take advantage of worldwide cutting-edge careers with industries using nuclear technology

Why study nuclear?

The nuclear industry is experiencing significant growth worldwide. There is increasing demand for skilled specialists to maintain and operate nuclear facilities, particularly in defence, as well as in medical, aerospace, and government sectors.

Locally, Australia, the US, and the UK have formed a trilateral partnership, leading to significant investment in building and maintaining nuclear-powered submarines. With an estimated 8,000 jobs to be created in the industry, studying nuclear at Flinders will equip you with unique, in-demand skills that are highly sought after by employers.

Why study nuclear at Flinders?

Flinders' extensive industry connections put our graduates in a prime position to seize these international and local opportunities.

Our courses are offered fully online, and have been specially designed with industry to ensure they meet the needs of specific nuclear roles to get you ready for work. They are perfect for those looking to upskill in industries such as defence, shipbuilding, aerospace, government, mining, medical and pharmaceutical.

Coupled with our expertise in Advanced Manufacturing, Flinders graduates will drive the nuclear industry forward in Australia, mastering skills like digital component design, industrial 3D printing, safety monitoring, output modelling, improving worker safety, and utilising VR to explore interactions between chemical, physical, and material components.

What's on offer?

Our courses have been specially designed with industry to ensure the capabilities you learn align to meet the needs of specific nuclear roles in defence and empower you to work effectively in this quickly evolving space.

Flinders offers a fully flexible package of nuclear and advanced manufacturing courses enabling you to undertake short courses to gain specific in-demand skills or specialise with a range of postgraduate degrees.

Special thanks to ANSTO, Australia's nuclear science and technology organisation, for contributing expertise to the course content. As the operator of OPAL, Australia's only multi-purpose reactor, ANSTO draws on more than 70 years of nuclear know-how, safety and engineering excellence.

Nuclear Postgraduate Courses

Graduate Certificate (4 subjects) 6 months full time

Compliance & Safety	Workforce & Governance	Radiological	Advanced Manufacturing

Graduate Diploma in Nuclear Science & Technology
(Grad Cert plus additional 4 subjects) 12 months full time

Master of Nuclear Science & Technology
(Grad Dip plus additional 4 subjects) 18 months full time

Postgraduate specialisations

Course dates and times can be found in the "Timetable" section at the end of this booklet

Courses are available full or part-time

Graduate Certificate in Nuclear Safety & Compliance

- Nuclear Safety & Compliance
- Regulation: Codes & Standards
- Criticality Safety Management
- Nuclear Fundamentals

Graduate Certificate in Nuclear Workforce & Governance

- Nuclear Fundamentals
- Nuclear Safety & Compliance
- Regulation: Codes and Standards
- Leading a Future Workforce (option)
- Project Management (option)

Graduate Certificate in Radiological

- Radiation & Radiological Protection
- Radiation Shielding
- Radiation Damage in Materials
- Reactor Materials

Graduate Certificate in Advanced Manufacturing

- Production Engineering
- Innovation & Industry 4.0
- Nuclear Submarine Construction & Commissioning
- Reactor Materials

Nuclear Postgraduate Courses

All topics are self-paced and do not have a set contact time.

Criticality Safety Management
Develop an understanding of nuclear criticality safety and the management of fissile materials. Learn the fundamentals of reactor physics, fuel cycles and criticality safety analysis used across the nuclear industry.

Innovation & Industry 4.0
Equip students with innovative thinking, an understanding of Industry 4.0 readiness in organisations, innovation capabilities and industry 4.0 in the supply chain.

Leading a Future Workforce
Provides in-depth knowledge and skills on various traditional and contemporary theories of leadership. Learn how to utilise various theoretical frameworks to lead a highly digitised workforce.

Nuclear Fundamentals
Develop a foundational understanding of nuclear science, including atomic structure, radioactivity and nuclear reactions. Explore the applications, risks, regulations and societal considerations shaping the future of nuclear technology.

Nuclear Safety & Compliance
Learn about the international obligations and nuclear safeguard agreements that Australia has, including those with the International Atomic Energy Agency (IAEA), the Nuclear Non-Proliferation Treaty (NPT), Comprehensive Safeguards Agreement (CSA) and more.

Nuclear Submarine Construction & Commissioning
This topic equips participants with a comprehensive understanding of the end-to-end lifecycle of nuclear-powered submarine construction, from nuclear-grade manufacture and reactor plant integration through to testing, authorisation and commissioning.

Production Engineering
Exposes participants to key production engineering tools and methodologies that can be integrated into a range of Manufacturing, Production, Jobbing Shop and sustainment scenarios.

Project Management
Apply concepts of the management of engineering projects and organisations, with particular emphasis on analysing large industry, complex, and/or interdisciplinary projects.

Radiation Damage in Materials
Examine how radiation interacts with materials in nuclear systems, causing atomic-scale defects and changes in material properties such as swelling, creep, embrittlement and loss of ductility.

Radiation & Radiological Protection
Explains the properties of different types of radiation occurring due to nuclear processes and identifies means whereby levels of radiation and dosages can be detected and measured.

Radiation Shielding
Introduces the subject of radiation shielding and illustrate solutions to the particle transport equation in the context of Monte Carlo and deterministic transport codes.

Reactor Materials
Learn the science and engineering of reactor materials, and the factors that influence the lifetime of these materials including corrosion, environmentally assisted fracture, and irradiation embrittlement.

Regulation Codes and Standards
Develop an understanding of the codes, standards and regulatory frameworks governing nuclear science and technology, including the roles of key Australian and international regulatory bodies.

Nuclear Postgraduate Courses

Timetable

Course	Topic	Study Period
Graduate Certificate in Nuclear Safety & Compliance	Nuclear Fundamentals	25 January - 2 April 2027
	Nuclear Safety & Compliance	5 April - 11 June 2027
	Regulation Codes & Standards	27 July - 30 September 2026; *or* 14 June - 13 August 2027
	Criticality Safety Management	5 October - 11 December 2026; *or* 6 September - 12 November 2027
Graduate Certificate in Nuclear Workforce & Governance	Nuclear Fundamentals	25 January - 2 April 2027
	Nuclear Safety & Compliance	5 April - 11 June 2027
	Regulation Codes & Standards	27 July - 30 September 2026; *or* 14 June - 13 August 2027
	Project Management *(option)*	26 July – 29 October 2027
	Leading a Future Workforce *(option)*	5 October - 11 December 2026; *or* 1 March - 7 May 2027; *or* 4 October - 10 December 2027

Nuclear Postgraduate Courses

Course	Topic	Study Period
Graduate Certificate in Radiological	Radiation & Radiological Protection	5 April - 11 June 2027
	Radiation Shielding	25 January - 2 April 2027
	Radiation Damage in Materials	14 June - 13 August 2027
	Reactor Materials	16 August - 22 October 2027
Graduate Certificate in Advanced Manufacturing	Production Engineering	26 July - 29 October 2027
	Innovation & Industry 4.0	1 March - 4 June 2027
	Nuclear Submarine Construction & Commissioning	14 June – 13 August 2027
	Reactor Materials	16 August – 22 October 2027

**Dates subject to change*

More information

For information about start dates, entry requirements and topic prerequisites, please contact us at **ask@flinders.edu.au** or visit **flinders.edu.au/nuclear**

Contact us

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