h&b defence

Curtin University

Curtin Credentials

Naval Nuclear Foundations: Technology and Safety

Start:
25-26 March 2026
4-5 June 2026
12-13 Aug 2026*

Duration: 30 hours
Length: 2 Days#

Delivery Mode:
Blended^

Price:
Fully Funded§

Join H&B Defence's two-day intensive course designed for professionals supporting nuclear-powered submarines and associated infrastructure.

Led by seasoned experts, this program gives you:

- Knowledge of US and UK naval nuclear history
- Clear understanding of pressurised water reactor fundamentals
- Essential skills in quality assurance and risk management for submarine safety and reliability.

This course forms part of a wider competency framework and serves as the introductory module for three of the six naval nuclear topics.

Spread across two days, we will cover the history of naval nuclear technology, the technology itself, and some of the safety and assurance philosophies associated with nuclear-powered submarines.

Who is this credential for?

This credential is particularly suitable for:

- Those intending to support the design, build, sustainment or disposal of nuclear-powered submarines and associated infrastructure.
- The first in a series of training modules aligned with US and UK nuclear requirements and tailored to the Australian context, this course is designed for those overseeing staff involved in the delivery of nuclear powered submarines, including Tier 2 supplier managers and waterfront enabling teams.
- While there are no educational pre-requisites, there is a level of learning to be attained across a breadth of topics – biology, physics (includes mathematics to a year 10 equivalent), chemistry, history, politics and management (risk, safety and assurance).
- At completion, learners should be considered to have a basic level of nuclear literacy.

What you will learn

This course forms part of a wider competency framework with this serving as the introductory module for three of the six naval nuclear topics.

Spread across two days, we will cover the history of naval nuclear technology, the technology itself, and some of the safety and assurance philosophies associated with nuclear-powered submarines.

Course main topics and themes

- History of Naval Nuclear Propulsion: Overview
- Historical Foundations and Strategic Milestones
- Policy Safety and Strategic Cooperation
- Case Studies and Future Outlook
- Radiation and Public Perception
- Foundations of Nuclear Physics
- Radiation Types, Sources and Safety Perspectives
- Perspective Statements and demonstration
- Public Perception and Communication Strategies
- Quality Assurance and Risk Management Framework
- Quality Assurance: First time quality, audit and continuous improvement
- Risk management Framework and Incident Management.

Discover more

Curtin Credentials focus on five themes, which have been carefully curated based on what's most relevant and valuable to professionals today, and in the future. This credential fits within the following theme:

Future of Work

Thrive and adapt in the changing world of work by developing and broadening your skillset in a range of areas including work design and cognitive flexibility.

Credential learning outcomes

1 – Nuclear Technology

- Explain the general fundamentals of a pressurised water reactor including design functionality.
- Summarise the nuclear physics and how they relate to "inherent safety" (Why did we choose PWRs), why SSNs Vs. SSKs, Historical Safety Record.

2 – Radiation and Public Perception

- Analyse the relative risk of nuclear-powered submarines - radiation normal operations and different types of nuclear event to a range of audiences.
- Explain the different types of radiation, historical nuclear events and their impacts. Normal operations and the relative risk compared to other radiation sources.

3 – Safety and Quality

- Apply the concept of risk-based decision-making with reference to Safety, Environmental and Assets within the nuclear-powered submarine context.

Assessment

To successfully complete this credential, you are required to pass a final assessment. To demonstrate what you have learned, you will:

i. Identify the key components and explain the basic design and function of naval nuclear propulsion systems.
ii. Analyse and outline the relative risks of nuclear-powered submarines as they relate to normal operations and nuclear scenarios using sector-specific terminology.
iii. Apply risk-based decision-making principles to scenarios as they relate to safety, environment, and assets within the nuclear-powered submarine context.
iv. Combined Case StudyModule content information.

Earn a badge

Once you successfully complete and pass the final assessment, you'll earn a digital badge that is instantly shareable to your social networks (including LinkedIn) which showcases your new skills and knowledge mastery.

Essentials

This credential provides foundation knowledge in a discipline and doesn't require previous knowledge.

You will also earn 5 credit points which are in line with Australian Qualification Framework Level 8 criteria (https://www.aqf.edu.au/framework/aqf-levels), ensuring comprehensive theoretical and/or technical knowledge of the credential. 100 credit points are required to earn a Graduate Certificate at Curtin.

Meet your facilitators

David Long

VP of Operations for Nuclear & Environmental Services at HII Mission Technologies, brings 39 years of experience in nuclear operations, program management, and leadership development. He has led DOE contract programs worth $6B, developed 130 managers through structured training, and held senior roles in naval nuclear operations. David holds an EE degree, an MBA, PMP certification, and serves on boards supporting nuclear energy and community initiatives.

Ashley Schneider

Chief Safety, Engineering & Assurance Officer at H&B Defence, oversees safety governance and technical assurance for major defence programs. Formerly Director for AUKUS Emerging Markets at HII, she led strategic planning and new operations in Australia. With 20+ years in nuclear engineering, waste management, and emergency planning, Ashley holds degrees from UCF, Virginia Tech, and UT Knoxville, and is a mom of six.

Chris Saint

Senior Engineering Manager at H&B Defence, oversees engineering capability and workforce development for Babcock's joint venture with HII. A former Royal Naval Artificer Apprentice on Vanguard Class submarines, Chris has 12+ years in nuclear submarine engineering, including serving as UK Naval Nuclear Head of Engineering Capability. He holds a Mechanical & Manufacturing Engineering degree from Portsmouth University.

Make tomorrow better.

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This publication is available in alternative formats on request.

* Curtin may cancel or reschedule a credential at any time and for any reason as it sees fit. The Start Date and the other details of this credentials are provided as a general guide only and may change from time to time.

\# This credential includes 30 hours of online resources, pre-readings, face-to-face sessions and assessments. However to pass and earn 5 credit points, you may need to commit further time.

^ A mix of online and face-to-face learning.

§ Limited fully funded places available for WA based Defence Industry professionals.

For more information

Curtin Credentials

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