The course covers the complete array of theory and practical guidance for the consideration of warship design, management, maintenance and disposal:

- Warship concept development and design management
- Regulation, seaworthiness & safety systems
- Warship design processes and requirements management
- Platform systems and fundamentals of Naval Architecture
- Above and below water Battlespace systems
- Production, sustainment and cost engineering

Developed for professionals who are looking to gain knowledge and skills in warship acquisition, management or disposal. It has been designed to ensure all participants gain valuable insight regardless their experience and industry background.

- Royal Institution of Naval Architects endorsed training
- Skilling Australia’s Defence Industry Programme (SADI) funding approved
- Trainers collectively possessing over 100 years of naval engineering experience
- Unique networking opportunities
- Ongoing support from the naval engineering community
- All course materials included

The course is delivered over 5 days by a team of discipline specialists, experienced and knowledgeable BMT consulting engineers.
A unique course for the Australian defence community, tailored to manage the capability, acquisition and sustainment phases of warship ownership.
Equipping you with the knowledge to understand and manage all stages of warship ownership.

**Naval Ships**
Ship types and their primary roles, key technical design drivers and the range of technical risks that might be presented by certain ship types.

**Project Types and Lifecycle**
The capability systems life cycle, the range of acquisition options and the risks and issues associated with each.

**Capability Development**
The approach to identifying, defining and developing capability and with specific regard to warships.

**Requirements Management**
The principles of requirements engineering/analysis and its role in supporting project success.

**Design Process**
The process of warship design and the various stages as they relate to acquisition activities.

**Design Control**
Taking a design from concept to final realisation; with focus on planning, implementation and monitoring skills required to control the design aspects of a warship program.

**Technical Review**
Tender evaluation methodologies, managing uncertainty and risk, and the need to request specific technical data to support the activity.

**Test & Evaluation**
RAN acceptance process and test and trials activities conducted to validate the function and performance of the design.

**Seaworthiness & Safety**
System safety management as it applies to the key activities of warship design.

**Cost Engineering**
Cost engineering methods and their accuracy and how this impacts on technical and project risk.

**Cost Modeling**
Detailing the methods of cost engineering with some theory and practical examples.

**Standards, Certification and Regulation**
Design standards and certification approaches for warship design. The roles and responsibilities of regulators.

**Above Water Battlespace**
The role of a warship in the above water battlespace and the impact of sensors, effectors and command and control elements have on the acquisition process and whole of life support.

**Below Water Battlespace**
The role of a warship in the below water battlespace and the impact of sensors, effectors and command and control elements have on the acquisition process and whole of life support.
Electronic Battlespace
Explains the role of network centric warfare and integrated battle management within a Joint and Coalition environment.

Survivability
Technical issues and risks associated with specifying, design for and validating survivability for warships.

General Arrangement
The impact on general arrangement of certain features of design and in particular examples of poor design and how to mitigate the risk of this occurring.

Hydrostatics and Hydrodynamics
Design and support considerations relating to stability, resistance, maneuvering and seakeeping.

Power & Propulsion
Design and through life considerations, design options and risks for power and propulsion equipment.

Structures
Structural design requirements, general arrangement and subdivision considerations and constraints, overview of failure mechanisms.

Production
Technical issues, risks and potential consequences associated with design-for production and production itself.

Hull & Mechanical systems
Design and integration of hull and mechanical systems and the demands from and influence on warship design.

Electrical & Control systems
To provide an understanding of electrical systems on a warship, including power, communication and control systems, providing an overview of system operating capabilities and principles, and considering platform integration issues.

Aviation systems
Explaining Navy’s aviation capability and the complexity of aviation operations on ships, including the implications for ship design and various support considerations.

Armament & Munitions
Consideration will be given to the recent development of weapon systems and their impact on the overall design and operation of the next generation of warship.

Environment
Environmental factors impacting ship design and capability management, including discussion on regulatory bodies.

Through Life Support
Through life support strategies, the advantages and disadvantages of each, and the need to consider TLS at the outset of any project. Emphasis on capability management through life.
Naval domain experts will draw on their extensive knowledge to improve your skills base.

<table>
<thead>
<tr>
<th>Gordon MacDonald</th>
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<tbody>
<tr>
<td>Gordon MacDonald, a Fellow of the Royal Institute of Naval Architecture has almost 40 years’ experience in the maritime Defence and commercial industry.</td>
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<tr>
<td>A graduate of Naval Architecture, he has held positions as a sea-going marine engineering officer in the merchant marine, classification society surveyor, ship repair manager and warship/submarine design engineer.</td>
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<td>In 1990 he joined the Australian Department of Defence where he has held various positions including Director of Navy Certification and Safety and Director Navy Platform Systems. He joined BMT Design &amp; Technology in 2004 as Technical Director and is the current Managing Director.</td>
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<table>
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<th>Tim Crawford</th>
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<td>Tim has 35 years of experience working within a variety of risk and safety paradigms and regulatory frameworks, including; ISO 31000, Australian WHS 2011, the RAN Safety management System (ABR 6303), ISGOTT (oil terminals) and MIL-STD-882C/D (Defence).</td>
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<tr>
<td>Following his initial naval training, Tim specialised as a deep specialist navigation officer (“Dagger N”) with appointments as OIC of the RAN Navigation Faculty and as Staff Officer – Navigation to the Royal Navy’s Flag Officer Sea Training (FOST) in the U.K.</td>
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<tr>
<td>His career highlights were two RAN major fleet unit Commands. During his career Tim has also gained project management skills in multi billion dollar acquisition projects, most notably as the Capability Project Manager for the Australian LHD and tanker replacement projects.</td>
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<th>Tim Gates</th>
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<tr>
<td>Tim Gates is a professional naval architect with 26 years experience in the acquisition of ships and submarines for the Royal Australian Navy.</td>
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<tr>
<td>Tim most recently undertook the naval architectural assessment of the concept design of the evolved Navantia F104 design for the RAN Future Frigate and engineering management of the evaluations of evolving the Collins class submarine and the Military Off The Shelf options for the RAN Future Submarine.</td>
</tr>
<tr>
<td>Tim provided on-site ship manager services for the first ship from steel cut to launch and initial outfitting, the Commonwealth classification society liaison officer, undertaking Design Assurance Representative function for naval architectural aspects from concept design development through to delivery for the LHD Amphibious Assault Ship Project.</td>
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Aidan Depetro

Aidan joined BMT Design & Technology as a Mechanical Engineer in 2008 where he initially worked on engineering assessments and detailed designs for RAN ships including the HMAS SUCCESS double hull conversion.

In 2010, Aidan was seconded to BMT RCL in the UK where he worked on the RN Carrier and MARS Tanker programs whilst completing quantitative risk and cost-benefit analysis for the oil and gas industry and for the procurement of HMAS Choules.

Since returning to Australia, Aidan has completed a number of risk, cost and feasibility analysis tasks including the RAN Surface Fleet LOTE Study, AAD Future Icebreaker COD and various valuation and cost assurance tasks.

Trevor Dove

Trevor has nearly 10 years of experience in ship design and consulting in both the commercial maritime and defence sectors.

Since joining BMT Design & Technology in 2012 as a Senior Naval Architect, Trevor has undertaken technical lead and project management roles in a range of commercial and defence industry projects including life extension studies for the RAN, detailed design of commercial vessels and management of personnel positioned in the SEA 1000 IPT.

Jesse Millar

Jesse has built a career in Technical Support, providing support to a wide range of maritime assets, including Warships and Tankers.

He started his career as a Marine Engineering Officer with the RAN, before heading abroad and working as a technical manager of Superyachts. He then moved back to Perth and was part of the design team at Austal for the Cape Class Patrol Boats.

Jesse is now the Asset Management Lead Engineer at BMT and has delivered services for a wide variety of platforms, notably the Armidale Class Patrol Boats and the Army Watercraft Fleet.

Chris Luxmoore

Chris has over 10 years’ experience in naval and commercial marine projects after taking up his first marine engineering post at Garden Island naval base in Sydney.

In subsequent roles with BAE Systems he was a mechanical engineer on ANZACs, OPVs and the HMAS Sirius conversion project. Chris has also worked on the design and build of a ship lift & transfer system firstly in Adelaide and then Germany.

On return to Australia has been involved in a large civil pipeline project in Victoria and two large naval ship building projects in Williamstown.
International Knowledge Network, BMT Group spans over 5 continents specialising in areas from defence to renewables.

$3900 ex. GST.
All course materials included

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Website: www.bmtdesigntechnology.com.au

About Us
BMT Design & Technology is a truly independent engineering and project management consultancy with proven experience in the defence, maritime and transport industries.

Providing confidence from the early stages of concept through to in-service support and disposal; we deliver innovative solutions to the most complex platform and system issues.

SADI Funding:
The Skilling Australia’s Defence Industry (SADI) program is part of the Australian Government’s investment to increase the skills base of the defence industry. This course may qualify for funding to eligible companies.

Further information can be found at: business.gov.au/SADI

Keep up to date with the latest BMT News: