



Course Outline

NAVL3120

Ship Design and Propulsion

Summary of the Course

This course focuses on the design process as it applies to ships and to the principal forms of mechanical propulsion, i.e. marine screw propellers and waterjets.

Aims of the Course

This course enables you to explore the ship design process commencing with the requirements of the owner and progressing to a new design which meets those requirements. You are given practical insight into the role of the various regulatory authorities and application of the freeboard and tonnage rules and the sea-keeping behaviour of ships and how they influence the design outcome.

The course also provides you with the terminology unique to ship propulsion, which is then used as a stepping stone to determining the principal particulars of a series type propeller or waterjet unit to suit a particular application. You are then given the tools to translate these principal particulars into a detailed design which meets the regulatory requirements and a

Part A Design

No.	Assignment	Due via Moodle at 5:00pm	Mark
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Examinations

The final examination for the course, scheduled during the university examination period, is in November.

Provisional Examination timetables are generally published on the NUS website in September.

For further information on exams please see [Administrative Matters](#)

Calculators

You will need to provide your own calculator of a basic and mode approved by NUS for the examinations. The list of approved calculators is shown at <https://student.unsw.edu.au/exam-approved-calculators-and-computers>

Suggested additional readings

Carton J. *Marine Propellers and Propulsion* 2nd Ed Butterworth-Heinemann London

Green P. *The Design of Marine Screw Propellers* Hutchinson London

Pauving J. Ed. *Principles of Naval Architecture: Propulsion* Society of Naval Architects and Marine Engineers Jersey City

Lawson K J and Upper E C. *Basic Ship Theory* Vol 1 and Vol 2 Longman London

Launder H E. *Hydrodynamics in Ship Design* Vol 1 and Vol 2 Society of Naval Architects and Marine Engineers Jersey City

These are available in the NCL Library and are useful as additional reading material, giving good descriptions. Lawson and Upper of the design process and Green and Launder of fitting the calculations for propellers. Carton and Pauving are the modern reference works on propeller design.

Additional materials provided in Moodle

This course has a site on NCL Moodle which includes:

- copies of assignments
- previous examination papers in this course
- some answers to the numerical questions and
- a discussion forum

The discussion forum is intended for you to use with other enrolled students

Recommended internet sites

There are many websites giving lectures, papers and data on ship technology and design. Try searching for 'ship design' including the quote marks.

Principally parts of many different types of vessels are available on the Internet.

If plagiarism is found in your work when you are in first year your lecturer will offer you assistance to improve your academic skills they may allow you to do additional resources attend the Learning Centre or submit a resubmit your work with the problem fixed. However in more serious instances in first year such as stealing another student's work or paying someone to do your work may be investigated under the Student Misconduct Procedures.

Repeated plagiarism even in first year, plagiarism after first year or serious instances may also be investigated under the Student Misconduct Procedures. The penalties under these procedures can include a reduction in marks failing a course or for the most serious matters the plagiarism in an honours thesis, even suspension from the university. The Student Misconduct Procedures are available here.

[http://www.ncl.ac.uk/academic-integrity/academic-integrity-procedures/academic-integrity-procedures.html](#)

Appendix A: Engineers Australia (EA) Professional Engineer Competency Standards

	Program Intended Learning Outcomes
PE1: Knowledge and Skill Base	PE 1.1 Comprehensive theory based understanding of underpinning fundamentals
	PE 1.2 Conceptual understanding of underpinning mathematics, statistics and computing
	PE 1.3 In depth understanding of specialist bodies of knowledge
	PE 1.4 Discernment of knowledge development and research directions
	PE 1.5 Knowledge of engineering design practice
	PE 1.6 Understanding of scope, principles and sustainability of sustainable engineering practice
PE2: Engineering Application Ability	PE 2.1 Application of established engineering methods to complex problems
	PE 2.2 Future application of engineering technology