Course Outline

Semester 1, 2015

NAVL3610

Ship Hydrostatics and Practice

Summary of the course

This course focusses on ship terminology, the ship design office, construction and repair facilities, and ship operations, and the hydrostatic calculations required for design and analysis purposes.

Aims of the course

This course enables you to explore the terminology unique to ships and then to use this as a stepping stone into how design consultancies, ship repair yards, naval and commercial vessels, and ship classification societies operate.

The course also provides you with a solid grounding in the ship hullform and numerical integration methods required to produce the hydrostatic particulars and stability characteristics of a vessel, practical insight into how stability criteria are applied to a range of vessels types, and the details of trim, flooding, subdivision and launching.

This course introduces ship terminology which will be used in all subsequent NAVL courses, and complements the overall view of the design process given in NAVL3120. It builds on the report-writing skills which you commenced in ENGG1000, and provides an introduction to the technical meetings of your professional society, the Royal Institution of Naval Architects.

Student learning outcomes

At the conclusion of this course, it is expected that you will be able to:

- Visit a ship or site and write a coherent technical report on what you have seen and learned.
- Conduct an inclining experiment, work the results up to the lightship condition, and assess the stability of a vessel against a specified set of criteria.
- Use principles of fluid statics, masses and centres of gravity, and numerical integration methods.

- stability characteristics.
- Perform launching and subdivision calculations to ensure the safety of the ship during launching or flooding.

Graduate attributes

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https://my.unsw.edu.au/student/atoz/GraduateAttributes.html

UNSW aspires to develop graduates who are rigorous scholars, capable of leadership and professional practice in a global community. The university has, thus, articulated the following Graduate Attributes as desired learning outcomes for ALL UNSW students.

UNSW graduates will be

1. Scholars who are:
   (a) understanding of their discipline in its interdisciplinary context
   (b) capable of independent and collaborative enquiry
   (c) rigorous in their analysis, critique, and reflection
   (d) able to apply their knowledge and skills to solving problems
   (e) ethical practitioners
   (f) capable of effective communication
   (g) information literate
   (h) digitally literate

2. Leaders who are:
   (a) enterprising, innovative and creative
   (b) capable of initiating as well as embracing change
   (c) collaborative team workers

3. Professionals who are:
   (a) capable of independent, self-directed practice
   (b) capable of lifelong learning
   (c) capable of operating within an agreed Code of Practice

4. Global Citizens who are:
   (a) capable of applying their discipline in local, national and international contexts
   (b) culturally aware and capable of respecting diversity and acting in

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The content reflects the experience of the lecturer in drawing offices, in shipyards, and at sea on various vessels, and practical examples drawn from that experience are used throughout the lectures and tutorials.

Effective learning is supported when you are actively engaged in the learning process and by a climate of enquiry, and these are both an integral part of the lectures and tutorials.

You become more engaged in the learning process if you can see the relevance of your studies to professional, disciplinary and/or personal contexts, and the relevance is shown in the lectures and assignments by way of examples drawn from industry.

Dialogue is encouraged between you, others in the class and the lecturer. Diversity of experiences is acknowledged, as some students in each class have prior m8(o)-3(u)-3(,)-3(o)-3(

There is a range of resources to support students to avoid plagiarism. The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one. Information is available on the dedicated website Plagiarism and Academic Integrity website: http://www.lc.unsw.edu.au/plagiarism/index.html

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

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 ask you to look at some online resources, attend the Learning Centre, or sometimes resubmit your work with the problem fixed. However more serious instances in first year, such as stealing

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 the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in a honours thesis) even suspension from the university. The Student Misconduct Procedures are available here: http://www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Further information on School policy and procedures in the event of plagiarism is presented in a School handout, *Administrative Matters for All Courses*, available on the School website.

7. COURSE SCHEDULE

All lectures in this course are given by Mr David Lyons.

Tuesday	0900	1200	QuadG48
Wednesday	0900	1200	EE218 or industry visit location TBA

Week	Day	Part A	Part B
1	Tue		Ship geometry and hydrostatic concepts
	Wed	Ship terminology and report-writing lecture	
2	Tue		Integration methods
	Wed	Naval ship visit	
3	Tue		Coefficients of form
	Wed	Ship building and repair yards	
4	Tue		Hydrostatics (1)
	Wed	Ship repair yard visit	
5	Tue		Hydrostatics (2)

	Wed	Consultancies and survey authorities lecture	
6	Tue		Transverse stability (1)
	Wed	Commercial tug visit	
7	Tue		Transverse stability (2)
	Wed	Small consultancy visit	
8	Tue		Longitudinal stability

Rawson, K.J. and Tupper, E.C. (2001), *Basic Ship Theory*, Butterworth Heinemann, London.

These are all available in the UNSW Library and are useful as additional reading material.

Lamb (2003 and 2004) are also text books for other naval architecture courses at UNSW and are available for purchase from the Society of Naval Architects and Marine Engineers, Jersey City, USA. However, the price to non-members (of any

Many videos of launchings and side-launchings of vessels may be found on

Other Resources

If you wish to explore any of the lecture topics in more depth, then other resources are available and assistance may be obtained from the UNSW Library.

One starting point for assistance is www.library.unsw.edu.au/servicesfor/index.html

9. COURSE EVALUATION AND DEVELOPMENT

Feedback on the course is gathered periodically using various means, including the Course and Teaching Evaluation and Improvement (CATEI) process, informal

meetings. Your feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

In this course, recent improvements include the provision of a contents page for the Hydrostatics lecture notes, and visits to two consultancies designing high-speed craft (in view of the course NAVL4110 Design of Yachts and High-speed Craft).

10 ADMINISTRATIVE MATTERS

You are expected to have read and be familiar with *Administrative Matters*, available on the School website.

This document contains important information on student responsibilities and support, including special consideration, assessment, health and safety, and student equity and diversity.

D. Lyons
20 February 2015