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Marine Technology Education Consortium

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Professional Development Training

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Course Director

Professor Philip Wilson

Presented by

Ema Muk-Pavic (UCL)

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The Marine Technology Education Consortium is a collaboration of four UK universities:

- Newcastle upon Tyne
- Southampton
- Strathclyde
- University College London

and is also delivered in collaboration with Rolls-Royce Group Plc

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The consortium offers an innovative, flexible training programme, designed specifically for graduates working in the marine industry.

Three postgraduate qualifications are available:
MSc, Postgraduate Diploma and Postgraduate Certificate.

Each programme module is available as a stand alone Continuing Professional Development module (CPD).

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The Management Board

includes representatives from all of the universities and leading marine companies. The industrialists make an important and valuable contribution to the programme and represent a wide range of industrial activity. The companies involved are BAE Systems, BMT, Converteam, Lloyd's Register and Rolls Royce.

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Accreditation

All of the modules are approved for CPD by the Institute of Marine Engineering Science and Technology and the Royal Institution of Naval Architects.

The MSc and PG Diploma are approved for CEng registration by IMarEST and RINA .

Entry Qualifications: 2.II Engineering Honours Degree level or equivalent.

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The Streams available:

- General
- Marine Engineering
- Naval Architecture
- Offshore Engineering
- Small Craft Design
- Classification and Survey
- Conversion and Repair
- Defence
- Offshore Marine Renewable Energy

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Programme Structure:

- MSc 180 credits (10 modules + 80 credit project)
- Postgraduate Diploma 120 credits (8 modules + 40 credit project)
- Postgraduate Certificate 60 credits (6 modules)

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University Module Structure:

Pre-school distance learning material: 50 hours
Delivered through the web via Blackboard system.

Intensive school (Monday - Friday): 35 hours
Held at the delivering university.

Post-school distance learning material: 15 hours
Delivered through the web via Blackboard VLE.

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Virtual Learning Environment:

VLE Blackboard is a secure web based learning and teaching tool. It is robust and reliable.

It offers the following features:

- Communication and discussion
- Webinars
- Assessment
- Monitoring and tracking
- Base for resources and materials

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Industrial Project:

Projects are conducted in the workplace.

Designed to be ‘multi disciplinary’ and relevant to the operation or strategy of the student’s employer.

Requires academic supervisor and industrial mentor.

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Pre-Requisite:

Candidates from a non-marine background shall normally take the following marine foundation modules:

A1 Naval Architecture (Southampton)
A2 Marine Engineering (UCL)

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Core Modules (B1-B4):

B1 Maritime economics (Strath)
B2 Marine project management (Ncl)
B3 Risk, reliability and safety (Strath)
B4 Structural and material response (Strath)

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Elective Modules (C1-C17):

C1 The regulatory framework for the marine industry (Ncl)
C2 Optimisation in engineering design (Ncl)
C3 Advanced structural design and analysis (Strath)
C5 Advanced marine engineering design (Ncl)
C6 Marine system identification, modelling and control (Ncl)
C7 Marine electrical and electronic systems (UCL)
C8 Marine powering, transmission and propulsion (UCL)

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C9 Drilling and production processes (Strath)
C10 Design of fixed and floating offshore systems (Strath)
C11 Pipelines, moorings, umbilicals and risers (Strath)
C12 De-commissioning & re-use of offshore struct. (Strath)
C13 Lightweight structural design (Soton)
C15 Working craft design (Ncl)
C16 Surveying ships and offshore installations (Ncl)
C17 Warship concept design (UCL)

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Rolls-Royce Modules –
Early Engineering Professional Development Scheme:

RR1 Holistic gas turbines
RR2 Lean thinking for continuous business improvement
RR3 Excellence through programme management.

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Marine Renewable Energy Modules:

TCE1 Marine Renewable Energy: Sources and Recovery (Soton)
TCE2 Renewable Energy: Policy, Politics and Ethics (Ncl)
TCE3 Renewable Energy: Resources (Ncl)

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Current programme status:

MSc in Marine Technology	134 students
PG Certificate in Marine Technology	7 students
CPD	17 students
Total	158 students

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Warship Concept Design Module (UCL):

Unique Structure as only design-based module on the programme.
Students work on individual Ship Design projects (during pre-school, intensive school, and post-school period)
Module Aims:

- Introduce concepts of design integration and synthesis.
- Raising awareness of requirements generation.
- Exposing some constraints present in design.

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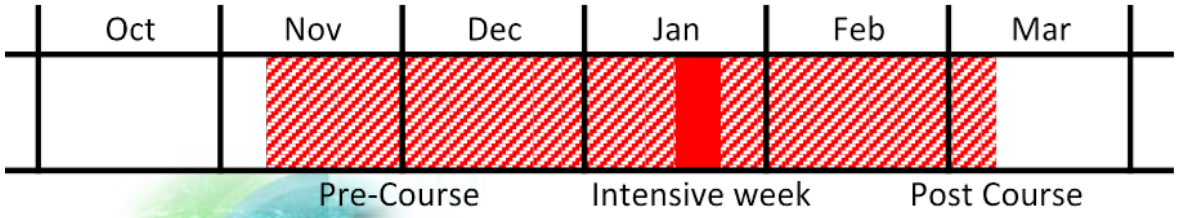
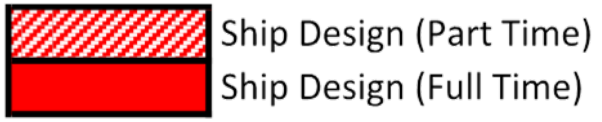
Challenges MTEC Ship Design Exercise

- Unsupervised self-learning process
- The potential for broad variations in the students existing design analysis skills
- Limited face-to-face interaction;
- Short taught course duration





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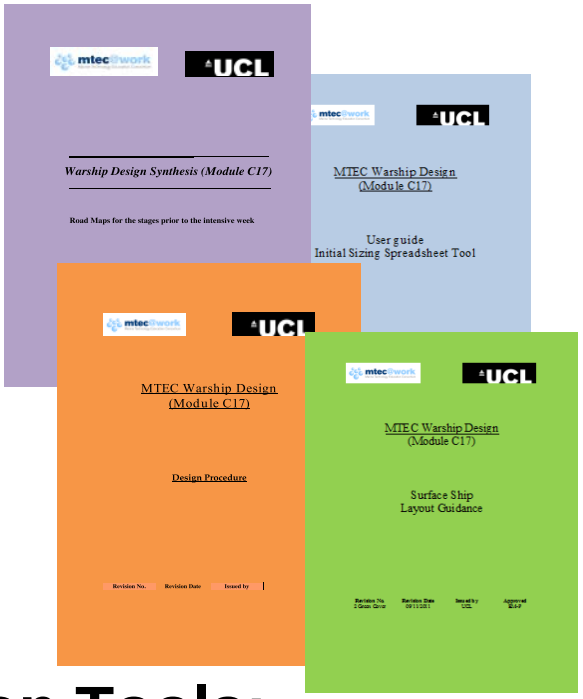
Extensive Module Material

1. Module Instructions
2. Design procedure with
   - Annex 1: Ship design
   - Annex 2: Concept Design Procedure
   - Annex 3: Parametric Survey
   - Annex 4: Design Development
3. Road maps
4. Layout guidance
5. Hullform parameters FORM
6. MTEC Design equipment data book
7. Stability guidance
8. Structural design guidance



Calculation Tools:

1. Initial sizing
2. Parametric survey
3. Layout generator
4. Cost capability
5. Structural design
6. Powering

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- **Extended use of Virtual Learning Environment to Long-Distance Support:**
  1. Webinars
  2. Online discussion forums
  3. Informative Assessment
  4. Peer Assessment

- **Student Enjoyment and Feedback**
  - General student feedback from 2006 onwards was very positive

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Some of the companies supporting current students on the MTEC programme:

BAE Systems	BMT
Det Norske Veritas	Lloyds Register of Shipping
Maritime Coastguard Agency	QinetiQ
British Waterways	Shell
Rolls-Royce	Alstom
MAN B&W	Germanischer Lloyd
Bureau Veritas	V Ships
Dubai Dry Docks	ABS
The Crown Estate	EON

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Meeting changes in demand:

Large increase in student numbers – over 60 students recruited in the last year

Increased undergraduate fees could see a further increase in MTEC student numbers

More need for MTEC within industry – over 70 companies are now benefiting from the programme

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