

# Proposal to modernise the Methodology of Teaching, Assessment/ Examination

<b>Marine Engineering - STCW III/1 CoC</b>	<b>Name of respondent, organisation and role:</b>		
<b>Competency/ Module: Marine Engineering: Pneumatics and Hydraulic Systems</b>			
<b>Knowledge, understanding and proficiency</b>	<b>Recommendation of working group regarding the outcome and objective.</b>	<b>Rationale</b>	<b>Action required</b>
<b>Outcome 1: Explain the operation of pneumatic and hydraulic systems</b>	Keep	Relevant	See sub-outcome actions
1.1 Identification of component symbols to British Standards.	Keep	Relevant	None
1.2 Operation of pneumatic circuit components.	Modernise	We must contextualise to help candidates understand how this outcome will impact shipboard operations.	Provide an introduction to practical application of pneumatic circuit components.
1.3 Operation of hydraulic circuit components	Modernise	We must contextualise to help candidates understand how this outcome will impact shipboard operations.	Focus on the practical use of hydraulic systems through real life workshop exercises or simulation software. (e.g. steering gear operation in real mode, stabilisers, etc...)
1.4 Properties of air as working fluid	Keep	Relevant	None
1.5 Properties of hydraulic fluids	Keep	Relevant	None
1.6 Safety precautions regarding pneumatic and hydraulic systems	Keep	Relevant	None

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<b>Outcome 2: Design, assemble and test a fluid power and control system</b>	Keep	Relevant	See sub-outcome actions
2.1 Design of circuit for a given application.	Keep	Relevant	None
2.2 Assembly of circuit using standard components	Keep	Relevant	None
2.3 Test of circuit to ensure correct operation	Keep	Relevant	None
<b>Outcome 3: Demonstrate fault-finding competence on a fluid power system</b>	Keep	Relevant	See sub-outcome actions
3.1 Interpretation of industrial drawings	Keep	Relevant	None
3.2 Diagnostic techniques	Modernise	We must contextualise to help candidates understand how this outcome will impact shipboard operations.	Focus on the practical use of hydraulic systems through real life workshop exercises or simulation software. (e.g. steering gear operation in real mode, stabilisers, etc...)
3.3 Rectification of faults	Modernise	We must contextualise to help candidates understand how this outcome will impact shipboard operations.	Focus on the practical use of hydraulic systems through real life workshop exercises or simulation software. (e.g. steering gear operation in real mode, stabilisers, etc...)
<b>Proposal submitted by:</b>	<b>Any other outcomes for this competency, above and beyond STCW which would be needed due to use of modern technology and impact of future fuels onboard:</b>		
	<b>Objective</b>	<b>Reason Why</b>	<b>Action required</b>

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Cadet Training & Modernisation Working Group	Include Human Element Factors throughout the syllabus	To provide seafarers with a contextualised understanding of the Human Element in the maritime industry, showing how they can put theory into practice in the work they carry out at sea.	Raise awareness throughout the Cadet's training of the areas in which human element factors will have an impact. Recommendations on where this can be included have been noted throughout the entire syllabus. Not every template has Human Element Factor recommendations but please do add any you feel may have been missed.
Cadet Training & Modernisation Working Group	Include Data Science skills throughout the syllabus	Data Science Skills (Comprehension, Analysis, Presentation, etc...) are already required within much of the syllabus. A further, specific focus on these skills needs to be taught where relevant.	A specific topic will need to be introduced to improve Cadets' Data Science skills. Practical application of data science skills should be highlighted throughout the syllabus. Not every template has Data Science recommendations but please do add any you feel may have been missed.
Cadet Training & Modernisation Working Group	Ensure all outcomes are contextualised to help Cadets understand what they are learning in relation to what they will experience at sea.	While some outcomes are intrinsically linked to work carried out at sea, some need to be contextualised to show how they apply to work on board. Where this is the case, it is important to make sure Cadets clearly understand how the outcome relates to work at sea and it is essential to make sure that this context is given with reference to current and future seagoing technologies and practices.	Where outcomes do not specifically cover a topic which relates to work carried out at sea, more must be done to contextualise the outcome and make it relevant to the maritime industry, giving specific shipping examples of how the outcome may be applied in a modern shipping context. Not every template has contextualisation recommendations but please do add any you feel may have been missed.