Proposal to modernise the Methodology of Teaching, Assessment/ Examination

Marine Engineering-STCW III/1 CoC			
Competency/ Module: Marine Engineering: Propulsion			
Knowledge, understanding and proficiency	**Recommendation of working group regarding the outcome and objective.**	**Rationale**	**Action required**
Outcome 1: Explain the layout, Construction and operation marine propulsion plant and ancillary systems as found on Modern Merchant Ships	Modernise	This outcome should be contextualised as it is important to make sure candidates 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.	Include practical elements as suggested in sub-outcome actions.
1.1Types of marine propulsion plant	Modernise	This outcome should be contextualised as it is important to make sure candidates 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.	Add water jet propulsion. Add hybrid propulsion with current examples. Add some novel solutions such as sails, kites, wind generators, solar sails, Magnus effect rotor and fuel cells. Add future trends and direction of the industry in terms of propulsion, energy saving, fuels, nuclear etc.
1.2 Layout of marine propulsion plant	Keep	Relevant	None
1.3 Operating principles of marine propulsion plant	Modernise	This outcome should be contextualised as it is important to make sure candidates clearly understand how the outcome relates to work at sea and it is essential to make sure that this	Introduce the basic principles of a variety of propulsion plants.

		context is given with reference to current and future seagoing technologies and practices.	
1.4 Operating principles of marine propulsion plant	Keep	Relevant	None
1.5 Construction of marine propulsion plant	Keep	Relevant	None
1.6 Systems that marine propulsion plant require in order to operate	Keep	Relevant	None
Outcome 2: Explain the operational procedures, operational problems, and maintenance of marine propulsion plant.as found on Modern Merchant Ships	Keep	Relevant	None
2.1 Types of marine propulsion plant	Keep	Relevant	None
2.2 Starting plant	Modernise	This outcome should be contextualised as it is important to make sure candidates 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.	Pneumatic, hydraulic and electric starting systems, which are most often operated electronically should all be included.
2.3 Stopping plant	Modernise	This outcome should be contextualised as it is important to make sure candidates 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.	Pneumatic, hydraulic and electric starting systems, which are most often operated electronically should all be included.

2.4 Fault recognition	Keep	This outcome should be contextualised as it is important to make sure candidates 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.	Include troubleshooting and practical problem solving once the fault is recognised.
2.5 Maintenance procedures	Modernise	This outcome should be contextualised as it is important to make sure candidates 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.	Introduce the basic principles of maintenance procedures for a variety of for propulsion plants.
Proposal submitted by:	**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:**		
	Objective	**Reason Why**	**Action required**
Cadet Training & Modernisation Working Group	Include Exhaust Gas Scrubbers (open and close loop) in this module.	Exhaust Gas Scrubbers are used for engines and boilers and are an important equipment related to propulsion machinery.	Include Exhaust Gas Scrubbers (open and close loop) in this module.
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.

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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.