Proposal to modernise the Methodology of Teaching, Assessment/ Examination

Marine Engineering - STCW III/1 CoC	Name of respondent, organisation and role:		
Competency/ Module: Marine Engineering: Auxiliary Systems	*Operate Auxiliary Machinery and associated control system*		
Knowledge, understanding and proficiency	**Recommendation of working group regarding the outcome and objective.**	**Rationale**	**Action required**
Outcome 1: Explain marine auxiliary equipment and system components.	Keep	Essential	None
1.1 Layout of marine auxiliary systems	Modernise	Modern systems need to be included	Include layout of modern auxiliary and control systems onboard
1.2 Types of marine auxiliary equipment	Modernise	Modern systems need to be included	Include modern Fresh Water Generator, Sewage, Air Conditioning and Fixed Firefighting Installation systems
1.3 Operating principles of marine auxiliary equipment	Modernise	Modern systems need to be included	Modernise to bring in line with updated regulatory requirements, standard operating procedures, and M Notices

1.4 Construction of marine auxiliary equipment	Modernise	Modern systems need to be included	Include new designs for monitoring systems, control systems and complex system designs.
Outcome 2: Explain routine and emergency operational procedures for marine auxiliary systems.	Keep	Essential	None
2.1 Starting and stopping of marine auxiliary systems	Modernise	Modern systems need to be included	Modernise to include reference to modern ship designs and recent M Notices Include Hybrid Propulsion and its auxiliary electrical systems
2.2 Routine and emergency operational procedures	Modernise	Modern procedures need to be included	Include modern standard operating procedures
2.3 Routine maintenance procedures	Modernise	Modern systems need to be included	Include use of computer based Planned Maintenance systems based on ship running data (Data Science Skills)
2.4 Routine testing of fire safety equipment	Keep	Essential	None
2.5 Routine and emergency testing steering gear	Modernise	Modern propulsion technologies, used at sea, should be included.	Include modern propulsion systems such as azimuth thrusters.
2.6 Pollution prevention procedures	Modernise	Modern procedures need to be included	Include modern firefighting operations (considerations for modern fuels and Greenhouse Gas emission reduction targets Include awareness of differing environmental regulations across the world and how this may impact procedures

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2.7 Paralleling of electrical generation plant	Keep	Essential	None
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 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.

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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.