

Proposal to modernise the Methodology of Teaching, Assessment/ Examination

Marine Engineering - STCW III/ 1 CoC	Name of respondent, organisation, and role:		
Competency/ Module: Fundamentals of Control Systems and Transducers			
Knowledge, understanding and proficiency	Recommendation of working group regarding the outcome and objective.	Rationale	Action required
Outcome 1: Explain control system elements and signals	Keep	Relevant	None
1.1 Functions of control system elements and signals	Modernise	Not all ships have an ETO on their Safe Manning Document, as such we must include input/output devices in the marine engineering syllabus.	Include Input/ output devices as part of this sub-outcome.
1.2 Characteristics of analogue and digital signals	Keep	Relevant	None
1.3 Transmission of analogue signals	Keep	Relevant	None
1.4 Transmission of digital signals	Keep	Relevant	None
1.5 Functions of signal conditioning devices	Keep	Relevant	None
Outcome 2: Explain the operation and application of a range of transducers used in control systems	Keep	Relevant	None
2.1 Operation and application of a range of transducers suitable for measuring the following variables: temperature, flow, displacement, velocity, pressure, strain, position, level and light	Keep	Relevant	None
2.2 Properties of transducers	Keep	Relevant	None
2.3 Identification of suitable transducers for various control systems	Keep	Relevant	None
Outcome 3: Describe the structure and behaviour of control systems	Keep	Relevant	None

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3.1 Sequence control systems	Keep	Relevant	None
3.2 On-off control systems	Keep	Relevant	None
3.3 Block diagram representation of open and closed loop systems	Keep	Relevant	None
3.4 Transient and steady state behaviour of open loop systems in response to the application of a Unit step input	Keep	Relevant	None
3.5 Transient and steady state behaviour of closed loop systems in response to the application of a Unit step input	Keep	Relevant	None
3.6 The use of controllers to modify open loop system responses	Keep	Relevant	None
3.7 The use of controllers to modify closed loop system responses	Keep	Relevant	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

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			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.