

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

Nautical - STCW II/1 CoC			
Competency/ Module: Ship Stability: An Introduction		Competency/: Maintain seaworthiness of the ship	
Knowledge, understanding and proficiency	Recommendation of working group regarding the outcome and objective.	Rationale	Action required
Outcome 1: Apply the basic principles of hydrostatics to load line calculations.	Contextualise	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.	Link this module with the “Marine Cargo Operations” module to give practical examples of where these principles apply.
1.1 Vessel displacement	Keep	Relevant	None
1.2 Mass, volume, density and relative density	Keep	Relevant	None
1.3 Archimedes principle, hydrostatic data, displacement volume, displacement, buoyancy	Keep	Relevant	None
1.4 Waterline length, breadth, draught, LBP, AW, CW, CB, and freeboard	Keep	Relevant	None
1.5 TPC, FWA and dock water allowance	Keep	Relevant	None
1.6 Displacement, deadweight and TPC tables	Keep	Relevant	None
1.7 Load line and draught marks	Keep	Relevant	None
1.8 Load line calculation	Keep	Relevant	None

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

1.9 Hydrometer use	Keep	Relevant	None
<b>Outcome 2: Apply the principles of statical stability to interpret GZ curves.</b>	Contextualise	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.	Feedback from industry to, “Add context to GZ curves making them more relevant in practice”.  Practical examples of the impact of the GZ curve should be used.
2.1 Centre of buoyancy, centre of gravity, initial transverse metacentre, righting lever, righting	Contextualise	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.	Industry suggestion to include examples of MAIB reports on vessels which have experienced incidents related to initial unstable equilibrium.
2.2 Moment, metacentric height	Contextualise	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.	Industry suggestion to include examples of MAIB reports on vessels which have experienced incidents related to metacentric height.
2.3 Stable, neutral and unstable conditions of stability at small angles of heel	Keep	Relevant	None
2.4 GZ curves	Keep	Relevant	None
2.5 Stiff and tender vessels	Keep	Relevant	None
2.6 Angle of loll	Contextualise	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.	Industry suggestion to include examples of MAIB reports on vessels which have experienced incidents caused by angle of loll.

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

<b>Outcome 3: Apply the principles of transverse stability to list calculations</b>	Keep	Relevant	None
3.1 Effect on G of loading, discharging and moving weights	Keep	Relevant	None
3.2 List	Keep	Relevant	None
3.3 Difference between list and loll and the methods of correction	Contextualise	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.	Industry suggestion to include examples of MAIB reports on vessels which have experienced incidents caused by angle of list/ loll.
3.4 Changes in stability during the voyage	Keep	Relevant	None
3.5 Free surface and the dangers and effect at small angles of heel	Keep	Relevant	None
3.6 Effect of tank subdivision and density on free surface	Keep	Relevant	None
3.7 Allowance for the effect of free surface	Contextualise	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.	Industry suggestion to include examples of MAIB reports on vessels which have experienced incidents caused by free surface effect.
<b>Outcome 4: Apply the principles of longitudinal stability to draught calculations</b>	Keep	Relevant	None

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

4.1 True Mean Draught (TMD), Longitudinal Centre of Flotation (LCF), Longitudinal Centre of Gravity (LCG), Longitudinal Centre of Buoyancy (LCB), Trimming Moment and Moment to Change Trim 1 cm (MCTC)	Keep	Relevant	None
4.2 Apply the principles of longitudinal stability to calculations involving the inter-relationship of draught, trim, weight and their positions	Keep	Relevant	None
<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>
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	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

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

		these skills needs to be taught where relevant.	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.