

Proposal to modernise the Methodology of Teaching, Assessment/ Examination

Marine Engineering - STCW III/2 CoC			
Competency/ Module: Applied Mechanics (Management Level)			
Knowledge, understanding and proficiency	Recommendation of working group regarding the outcome and objective.	Rationale	Action required
Outcome1: Solve equilibrium problems related to bodies subjected to coplanar and non-coplanar force systems	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.	Include the application of these concepts in the operation of onboard machinery. Use Case Studies and Industry Guidelines.
1.1 Cranks and connecting rods	Keep	Relevant	None
1.2 Non coplanar force system	Keep	Relevant	None
1.3 Bodies on an inclined plane	Keep	Relevant	None
1.4 Rapsons slide	Keep	Relevant	None
Outcome 2: Solve problems involving combinations of linear, angular and relative motion	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.	Include the application of these concepts in the operation of onboard machinery. Use Case Studies and Industry Guidelines.

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2.1 Single and double projectiles	Keep	Relevant	None
2.2 Velocity vector diagrams of simple mechanisms	Keep	Relevant	None
2.3 Stepped rope and flywheel systems	Keep	Relevant	None
2.4 Angular momentum and impulse	Keep	Relevant	None
2.5 Moment of Inertia and Radius of Gyration	Keep	Relevant	None
Outcome 3: Solve problems involving simple harmonic motion	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.	Include the application of these concepts in the operation of onboard machinery. Use Case Studies and Industry Guidelines.
3.1 Spring and mass systems	Keep	Relevant	None
3.2 Pendulums	Keep	Relevant	None
3.3 Crank and connecting rods	Keep	Relevant	None
3.4 Cams and followers	Keep	Relevant	None
Outcome 4: Solve problems involving the dynamics of motion	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	Include the application of these concepts in the operation of onboard machinery. Use Case Studies and Industry Guidelines.

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		future seagoing technologies and practices.	
4.1 Newton's 3 laws of motion	Keep	Relevant	None
4.2 Tractive effort and tractive resistance	Keep	Relevant	None
4.3 Bodies hauled or lowered on an inclined plane	Keep	Relevant	None
4.4 Power, force and velocity	Keep	Relevant	None
4.5 Potential and kinetic energy	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.
Cadet Training & Modernisation Working Group	Include Data Science skills throughout the syllabus	Data Science Skills (Comprehension, Analysis, Presentation, etc...) are already	A specific topic will need to be introduced to improve Cadets' Data Science skills. Practical

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		required within much of the syllabus. A further, specific focus on these skills needs to be taught where relevant.	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.