**QCF Unit 38**

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| Title: | **Statics for marine engineers** |
| Level: | **3** |
| Credit value: | **6** |
| Learning outcomes*The learner will:* | Assessment criteria *The learner can:* |
| 1. Be able to explain the differences between scalar and vector quantities
 | * 1. Identify the difference between scalar and vector quantities
	2. State examples of scalar and vector quantities
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| 1. Be able to identify the properties of force
 | * 1. State the units for mass and force
	2. Apply the relationship between weight and mass
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| 1. Be able to identify the effects of force
 | * 1. Identify the effects of the application of force
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| 1. Be able to solve problems involving forces in a plane.
 | * 1. Determine graphically and analytically the rectangular components of a force
	2. Determine graphically and analytically the resultant and the equilibrant of concurrent forces
	3. Determine the resultant and equilibrant moment of a force system
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| 1. Be able to analyse idealised frameworks
 | * 1. State the assumptions used when analysing an idealised framework
	2. Determine the reactions at the supports by applying the criteria for static equilibrium
	3. Determine by graphical means the forces and their nature in each member of a loaded framework
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| 1. Be able to determine the effects of force on a simple engineering component
 | * 1. State the definitions of the terms stress and strain
	2. Apply the relationships between force, stress, strain and Young’s modulus
	3. Interpret stress/strain graphs for common engineering materials
	4. Determine stress, strain and change in length on a simple engineering component
	5. Apply the relationship between shear stress, force and cross sectional area on a simple engineering component
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| **Additional information about the unit** |  |
| Unit aim(s) | To provide the candidate with the basic knowledge and understanding of Statics in an marine engineering context |
| Unit expiry date |  |
| Details of the relationship between the unit and relevant national occupational standards (if appropriate) | MNTB NOS (Jan 2006) – C11 Prepare and operate vessel propulsion machinery and ancillary systemsC12 Operate vessel auxiliaries and service machineryC34 Carry out maintenance of vessel mechanical machinery and systems |
| Details of the relationship between the unit and other standards or curricula (if appropriate) | Maritime and Coastguard Agency Marine Guidance Notice regarding Certificates of Competency – Engine Department  |
| Assessment requirements specified by a sector or regulatory body (if appropriate) | MSA Assessment StrategyMCA Requirements |
| Endorsement of the unit by a sector or other appropriate body (if required) | MCA…. |
| Location of the unit within the subject/sector classification system | Transportation |
| Name of the organisation submitting the unit | Scottish Qualifications Authority |
| Availability for use |  |
| Availability for delivery |  |
| Guided Learning Hours | 40 |